Shari'ah-konforme Banken:

Ausgewählte Befunde zur Fristen- und Risikotransformation sowie zum möglichen Einfluss eines *Shari'ah* Board

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Inhaltsübersicht

Kapitel I

Einführung und forschungsleitende Hauptfragen

I Einführung und forschungsleitende Hauptfragen

1. Problemstellung

Der *Shari'ah*-konforme Finanzsektor gehört mit zweistelligen Wachstumsraten weltweit zu einer der bedeutendsten Entwicklungen der letzten Jahrzehnte in der internationalen Finanzwirtschaft. In den Mittelpunkt des Interesses ist es auch durch die globale Finanzkrise gerückt, weil sich Islamische Finanzinstitute als relativ immun gegen ihre Auswirkungen erwiesen haben und daraus mögliche Lehren für alternative Gestaltungen westlicher Finanzsysteme diskutiert werden. Das hohe Wachstum des *Shari'ah*-konformen Finanzsektors konzentriert sich besonders auf die arabischen Golfstaaten (GCC) und auf die südostasiatischen Staaten, wie Malaysia und Indonesien. In zunehmender Weise setzt sich das Wachstum auch außerhalb Islamischer Länder fort, wie in Großbritannien und Singapore. In weiteren Nicht-Islamischen Ländern, wie in Frankreich, Deutschland oder in den USA sind gesetzliche oder steuerliche Anpassungen in der Diskussion oder bereits im Umsetzungsprozess. Das *Shari'ah*-konforme Finanzsystem ist in der Zielsetzung und in der Funktionalität vereinbar mit solchen westlicher Industrieländer und unterscheidet sich im Wesentlichen in den rechtlichen Rahmenbedingungen.[1] Seine Legitimierung erfährt es aus den primären (*Koran, Sunna, Idjma*) und sekundären (*Qiyas, Urf, Idjtihad*) Rechts- und Erkenntnisquellen des Islam, die die beiden Hauptbestandteile des islamischen Rechts, der *Shari'ah* bilden.[2] Trotz diverser Streitpunkte im Detail, hat sich ein Konsens über die wichtigsten Merkmale eines *Shari'ah*-konformen Finanzsystems entwickelt, wozu insbesondere das Verbot von Geldzinsen (*Riba*) zählt.[3] Auf dieser Basis gibt es besondere

[1] Vgl. Nienhaus (1982), S. 115, Islam und moderne Wirtschaft: Einführung in Positionen, Probleme und Perspektiven, Verlag Styria, Graz, Wien, Köln; Pryor (1985), S. 204 f., 219 f., The Islamic Economic System, Journal of Comparative Economics, 9, S. 197-223.

[2] Vgl. Leipod (2003), S. 132 f., Wirtschaftsethik und wirtschaftliche Entwicklung im Islam, in: Nutzinger (Hrsg.), Christliche, jüdische und islamische Wirtschaftsethik, Verlag, Marburg, S. 131-149; Dalkusu (1999), S.6 ff., Grundlagen des zinslosen Wirtschaftens: Eigentum, Geld, Riba, und Unternehmungsformen nach den Lehren des Islam, Dike Verlag, St. Gallen; Rohe (2009), S. 48ff., Das islamische Recht, 2. Auflage, C. H. Beck, München.

[3] Vgl. Nienhaus (2004), S. 235, Der Islam - Bremse oder Motor der wirtschaftlichen Entwicklung?, in: Hauff/

Finanzinstrumente, die einen wesentlichen Einfluss auf die Gestaltung der Geschäftsmodelle von *Shari'ah*-konformen Finanzinstituten ausüben. Dabei lassen sich grds. zwei Arten von Transaktionen unterscheiden: Finanztransaktionen auf Grundlage von Gewinn- und Verlustbeteiligung (*Mudarabah*, *Musharakah*) und Handelstransaktionen nach dem Prinzip der Aufschlagsfinanzierung (*Ijarah, Murabahah, Salam* und *Istisnah*).[4] Während Ersteres als die ideale Finanzierungsform nach dem Verständnis der *Shari'ah* gilt, wird Letzteres aus Sicht islamischer Rechtsgelehrten und Ökonomen, und erst recht aus der Perspektive von Ökonomen westlicher Industrieländer, kritisch betrachtet, aufgrund ihrer Nähe zu zinsbasierten Finanzinstrumenten. In der Praxis überwiegt auch Letzteres, so dass die Replikation westlicher Finanzprodukte und die Orientierung von Risikoprämien nach Marktzinssätzen (LIBOR) die Besonderheit der genutzten *Shari'ah*-konformen Finanzinstrumente in Frage stellt.[5] Die Gründe für die Dominanz von zinsbasierten Finanzprodukten sind vielfältig und auch interdependent. Auf der Finanzsystemebene steht zum gegenwärtigen Zeitpunkt das *Shari'ah*-konforme Finanzwesen vor großen Herausforderungen, um insbesondere die fehlende bzw. schwache institutionelle Infrastruktur zu überwinden, so dass die Funktionsfähigkeit sowie die Effizienz steigt und damit die Wettbewerbsfähigkeit, insbesondere gegenüber dem westlichen Finanzsystem. Auf überwiegend staatlichen Initiativen entstanden v.a. seit dem Jahrtausendwechsel Organisationen und Institutionen (AAOIFI, IFSB, LMC, IIFM, IIRA)[6], die Kontroll- und Aufsichtsregeln konzipiert sowie Standardisierungsprozesse in Gang gesetzt haben. Dabei

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Vogt (Hrsg.), Islamische und westliche Welt, Metropolis, Marburg, S. 227-253; Bälz (2001), S. 68, Die Islamische Scharia als Vertragsstatut? Kollisionsrechtliche Aspekte des Islamic Banking, Symposium in Heidelberg zu Islamisches und arabisches Recht als Problem der Rechtsanwendung und Symposium zu Ehren von Professor Emeritus Dr. Iur. Omaia Elwan, S. 63-72.

[4] Vgl. zum Überblick über die wichtigsten Vertragstypen der *Shari'ah*, Rohe (2009), S. 108, Das islamische Recht, 2. Auflage, C. H. Beck, München.

[5] Vgl. Chapra, (2007), S. 327, Challenges Facing the Islamic Financial Industry, in: Hassan/Lewis (Hrsg.), Handbook of Islamic Banking, Edward Elgar, Cheltenham (UK) u.a., S. 325-357; El-Gamal (2002), S. 181 ff., Islamic Finance: Law, Economics and Practice, Cambridge University Press; Akacem (2008), S. 75., Islamic Banking and Finance: Beyond "Shari'ah" Arbitrage, Review of Islamic Economics, 12, 2, S. 67-85.

[6] Vgl. Nienhaus (2005), S. 175 f., Islamische Ökonomik in der Praxis: Zinslose Finanzwirtschaft, in: Ende/ Steinbach (Hrsg.), Der Islam in der Gegenwart, Bundeszentrale für politische Bildung, Bonn, S. 163-198.

besteht die primäre Herausforderung darin, einerseits sich an bestehenden anerkannten Regelungen (Basel I, Basel II, IFRS, etc.) von Finanzsystemen westlicher Industrieländer zwecks Integration zu orientieren und andererseits den spezifischen (Risiko-) Eigenschaften des *Shari'ah*-konformen Finanzsystems gerecht zu werden. Die erste Zielsetzung ist umso leichter zu erreichen, je neutraler international anerkannte Richtlinien gegenüber der *Shari'ah* sind, weil sie dann als grds. konform gelten, und je vergleichbarer institutionelle und instrumentelle Ausgestaltungen sind.[7] Standardisierungen auf internationaler Ebene, sowohl innerhalb des *Shari'ah*-konformen Finanzsystems, als auch gegenüber Finanzsystemen westlicher Industrieländer, sind notwendig, um den ständig verändernden Marktbedingungen und grenzüberschreitenden Kapitalflüssen gerecht zu werden und dabei die globale Marktintegration, insbesondere von Entwicklungsländern, zu fördern, so dass Reibungsverluste im Rahmen von Transaktionen minimiert werden können. Die Übertragung der *Shari'ah* auf zunehmend komplexere Anforderungen in der funktionalen und institutionellen Ausgestaltung eines Finanzsystems, macht die Umsetzung und Durchsetzung des islamischen Rechts, speziell in Rechtsräumen westlicher Industrieländer, aber in vergleichbarer Weise auch in säkularen Staaten mit überwiegend islamischem Bevölkerungsanteil, umso schwieriger. Denn hier besteht die Gefahr des Konflikts zwischen nationalem (säkularem) Recht und der *Shari'ah*, d.h. bei unklarer Gesetzgebung oder Abgrenzung in der Umsetzung und Durchsetzung in einem dualen Finanzsystem entstehen Unsicherheiten, die sich nachteilig auf das *Shari'ah*-konforme Finanzsystem auswirken bzw. die höhere Risikoprämien verlangen.[8] Die rechtlichen Rahmenbedingungen stellen die

[7] Vgl. Haron/Hock (2007), 100 f., Inherent Risk: Credit and Market Risks, in: Archer/Karim (Hrsg.), Islamic Finance: The Regulatory Challenge, John Wiley & Sons, Singapore, S. 94-120; Bhambra (2007), S. 203 ff., Supervisory Implications of Islamic Finance in the Current Regulatory Environment, in: Archer/Karim (Hrsg.), Islamic Finance: The Regulatory Challenge, John Wiley & Sons, Singapore, S. 198-212; Ernst, F. (2011), S. 48 f., Promoting Islamic Finance and Banking, Institut für Rechtspolitik, Universität Trier.

[8] Vgl. Kalisch (2003), S. 119, Islamische Wirtschaftsethik, in: Nutzinger (Hrsg.), Christliche, jüdische und islamische Wirtschaftsethik, Metropolis, Marburg, S. 105-129; DeLorenzo/Mcmillen (2007), S. 150 ff., Law and Islamic Finance: An Interactive Analysis in: Archer/Karim (Hrsg.), Islamic Finance: The Regulatory Challenge, John Wiley & Sons, Singapore, S. 132-197.

Voraussetzungen für funktionierende Mechanismen der Informationserstellung und deren Übermittlung an die Wirtschaftssubjekte dar. Damit das *Shari'ah*-konforme Finanzsystem die Aufgaben der Informationserstellung und der Kommunikation ausführen kann, sind die in Gang gesetzten Standardisierungs- und Rechnungslegungsprozesse weiter zu vertiefen, um die Allokation von Investitionsmitteln und somit auch die Marktliquidität beeinflussen zu können. Die sich entwickelnden Standardisierungen und Rechnungslegungen können nur eine unvollständige Grundlage für die Überwachung und Kontrolle der Verlässlichkeit von intertemporalen Kooperationsbeziehungen bereitstellen. Regulierungen in Form von Kontroll- und Aufsichtsregeln bedürfen v.a. in Zeiten grenzüberschreitender Kapitalflüsse, einer internationalen Koordination innerhalb des *Shari'ah*-konformen Finanzsystems, aber gerade auch außerhalb gegenüber westlichen Finanzsystemen. Dabei dürfte Letzteres schwieriger umzusetzen sein, weil auch gerade nach der Finanzsystemkrise den Finanzsystemen westlicher Industrieländer selbst eine internationale Abstimmung von Regulierung und Aufsicht schwer fällt. Insgesamt fehlen die notwendigen Schutzmaßnahmen gegen Verhaltens- und Ertragsrisiken, weil es an den Grundlagen dieser Maßnahmen mangelt. Dies führt nicht zuletzt zur Beschränkung von Anbietern des Finanzsektors auf risikoaverse Finanzinstrumente und zur Nichterfüllung bzw. zur eingeschränkten Erfüllung von Transformationsfunktionen.[9] Die institutionelle Konkretisierung eines *Shari'ah*-konformen Finanzsystems findet sich vordergründig über Finanzintermediäre in Form von Banken und Kapitalbeteiligungsgesellschaften wieder.[10] Daher beschäftigen sich die Forschungsschwerpunkte im Rahmen der kumulativen Promotion hauptsächlich mit diesen Typen von *Shari'ah*-konformen Finanzintermediären. Banken können aufgrund eingeschränkter Refinanzierungsquellen nur teilweise ihre Transformationsfunktionen

[9] Vgl. Askari/Iqbal/Mirakhor (2009), S. 157 ff., Globalization and Islamic Finance: Convergence, Prospects and Challenges, John Wiley & Sons (Asia).
[10] Vgl. Nienhaus (2005), S. 163, 169, Islamische Ökonomik in der Praxis: Zinslose Finanzwirtschaft, in: Ende/ Steinbach (Hrsg.), Der Islam in der Gegenwart, Bundeszentrale für politische Bildung, Bonn, S. 163-198.

erfüllen. Die dadurch hervorgerufene besondere Herausforderung in der Steuerung von Liquiditätsrisiken lässt nur eingeschränkte Möglichkeiten der Fristen- und Risikotransformation zu. Auf der Finanzproduktebene stellen *Shari'ah*-konforme beteiligungsbasierte Finanzinstrumente (*Mudarabah*, *Musharakah*) höhere Herausforderungen aus der Prinzipal-Agenten-Problematik dar. Vertragsformen mit Gewinn- und Verlustbeteiligung als typisch betrachtetes Konstrukt im *Shari'ah*-konformen Finanzwesen, zählen zu Finanzierungsverträgen mit höherem Risiko für die Banken, aufgrund der asymmetrischen Information über das Finanzierungsprojekt und der Verhaltensunsicherheit des Finanzmittelnehmers. Im Vergleich zu zinsbasierten Finanzinstrumenten, sind die entsprechenden *Shari'ah*-konformen Instrumente mit höheren Agency- und Transaktionskosten verbunden. Darüber hinaus erfordern sie bei einer kritischen Masse von beteiligungsbasierten Finanztransaktionen höhere personelle und fachliche Kapazitäten, um Kontrollmaßnahmen oder Entscheidungen effizient zu tätigen. Zudem sind Maßnahmen des Risikomanagements für *Shari'ah*-konforme Finanzintermediäre beschränkt verfügbar, da typisch westliche Instrumente für das Hedging (Derivate) und für die Versicherung sowie anreizkompatible Vertragsgestaltungen mit Wandlungsoption nicht erlaubt sind.[11] Unter diesen Bedingungen können grundsätzlich gerade die Finanzierungsinstrumente, die dem Ideal der *Shari'ah* entsprechen, nur in eingeschränktem Masse bei relativ sicheren Investitionen angeboten werden.[12] Zudem kann sich in einem dualen Finanzsystem ein differenziertes Problem der adversen Selektion ergeben, wenn Kapitalnehmer schlechter Qualität, die keinen zinsbasierten Kredit bekommen, *Shari'ah*-

[11] Vgl. Lewis/Algaoud (2001), S. 40 ff., Islamic Banking, Edward Elgar, Cheltenham (UK) u.a.; Iqbal/Molyneux (2005b), S. 20 f., Islamic Banking and Finance: New Perspective on Profit-Sharing and Risk, Edward Elgar, Cheltenham (UK) u.a.; Tamer (2005), S. 75 ff., 107 ff., The Islamic Financial System, A Critical Analysis and Suggestions for Improving its Efficiency, Peter Lang.

[12] Vgl. Sundararajan (2007), S. 57, Risk Characteristics of Islamic Products: Implications for Risk Management and Supervision, in: Archer/Karim (Hrsg.), Islamic Finance: The Regulatory Challenge, John Wiley & Sons, Singapore, S. 40-68; Nienhaus (1986), S.8 ff., Islamic Economics, Finance and Banking – Theory and Practice Butterworths, London.

konforme Finanzierungsprodukte nach dem Beteiligungsprinzip nachfragen.[13]

Die Ziele der kumulativen Dissertation sind festzustellen, wie die *Shari'ah* und der Entwicklungszustand des *Shari'ah*-konformen Finanzwesens Einfluss auf das Transformations- und Risikoverhalten der Finanzintermediäre hat. Dabei werden getrennt voneinander Einflussfaktoren auf Markt-, Intermediärs- und Produktportfolioebene betrachtet. Hierzu werden folgende thematisch eng verbundene forschungsleitende Hauptfragen analysiert:

(1) Inwieweit unterscheiden sich die Einflussfaktoren der Liquiditätstransformation von *Shari'ah*-konformen Banken im Vergleich zu ihren westlichen Pendants.

(2) Welchen Einfluss üben marktspezifische und bankinstitutionelle Faktoren auf das Risikoverhalten einer *Shari'ah*-konformen Bank aus?

(3) Wie wirken sich die *Shari'ah*-konformen vertraglichen Rahmenbedingungen auf das Investitionsportfolio von Private Equity Firmen aus? Inwieweit beeinflussen im Rahmen der *Shari'ah* eingeschränkte Instrumente anreizkompatibler Vertragsgestaltung die Finanzierungsentscheidungen nicht-finanzieller Unternehmen?

2. Kurzgang der Untersuchung und Bestandteile des Dissertationsportfolios

Im Rahmen des kumulativen Dissertationsvorhabens stehen die forschungsleitenden Hauptfragen aus dem vorangegangenen Unterkapitel im Fokus der einzelnen wissenschaftlichen Beiträge. Im Folgenden werden zusammenfassend der jeweilige Kurzgang der Untersuchung der einzelnen Fragestellung erläutert und die wichtigsten Resultate und

[13] Vgl. Akacem (2008), S. 74 f., Islamic Banking and Finance: Beyond "Shari'ah" Arbitrage, Review of Islamic Economics, 12, 2, S. 67-85; Visser (2009), S. 89 ff., Islamic Finance: Principles and Practice, Edward Elgar, Cheltenham (UK) u.a.

Beiträge zum wissenschaftlichen Fortschritt aufgezeigt. Schließlich wird das Dissertationsportfolio in seinen Bestandteilen aufgelistet.

2.1. Forschungsleitende Hauptfrage (1)[14]

Das Liquiditätsmanagement stellt eine der größten Herausforderungen für *Shari'ah*-konforme Banken dar. Grundsätzlich besteht das Problem darin, dass sehr eingeschränkte Möglichkeiten der Refinanzierung, wie über einen Interbankenmarkt, über einen Sekundärmarkt oder über eine Zentralbank vorhanden sind, die im Einklang mit der *Shari'ah* stehen. Im Zuge dessen können *Shari'ah*-konforme Banken typischerweise nur im beschränkten Maße Fristen- und Risikotransformationen erfüllen und dadurch die Funktion von Liquiditätstransformationen.[15] Die fehlenden Instrumente und die geringe Größe des *Shari'ah*-konformen Finanzsystems führen dazu, dass *Shari'ah*-konforme Banken sehr vom kurzfristigen Einlagengeschäft abhängig sind.[16] In der Aktiv-Passiv-Steuerung verursacht diese Abhängigkeit ein Fristenungleichgewicht, dessen Folge ist, dass *Shari'ah*-konforme Banken keine vergleichbaren Möglichkeiten der Liquiditätstransformation wie ihre Wettbeweber haben, die ihr Geschäft entsprechend industrialisierter westlicher Staaten ausrichten (westlich im Folgenden). In der Konsequenz dominieren typischerweise kurzfristige Finanzkontrakte mit fixen Zahlungsströmen das Finanzproduktportfolio auf der Aktivseite einer *Shari'ah*-konforme Bank. Hinzukommt, dass im Vergleich zu westlichen Banken, in den meisten Fällen zumindest formal keine Einlagensicherung vorhanden ist, die

[14] Vgl. Alman (2012a), What Drives the Liquidity Transformation in Islamic Banks, Konferenzbeiträge: European Financial Management Association (EFMA), Braga 2011; Multinational Finance Society (MFS), Krakau 2012; Financial Management Association (FMA), Atlanta 2012.
[15] Vgl. Gassner/Wackerbeck (2010), S. 209 ff., Islamic Finance: Islamgerechte Finanzanlagen und Finanzierungen, 2. Auflage, Bank-Verlag Medien, Köln.
[16] Vgl. Aggarwal/Yousef (2000), Islamic Banks and Investment Financing, Journal of Money, Credit and Banking, 32, 1, S. 93-120; Chong/Liu (2007), Islamic Banking: Interest-free or interest-based?, Pacific-Basin Finance Journal, 17, 125-144; Hearn et al. (2010), Islamic Finance and Market Segmentation: Implications for the Cost of Capital, mimeo; Choudhury/Hoque (2006), Corporate Governance in Islamic Perspective, Corporate Governance, (6) 2, 116-128.

Shari'ah-konforme Banken dazu veranlasst, eine höhere Kapitalisierung zu wählen und das Risiko im Finanzproduktportfolio auf der Aktivseite zu senken.[17]

In der Analyse der Einflussfaktoren auf die Liquiditätstransformation von *Shari'ah*-konformen Banken wird zwischen Determinanten auf der Ebene der Bank und auf der Ebene des Produktportfolios differenziert. Dabei werden Banken aus islamischen Staaten des Nahen und Mittleren Ostens, Nordafrikas sowie Südostasiens über den Zeitraum von 2000 bis 2010 betrachtet. Die Regressionsanalyse wird auch für eine Kontrollgruppe von westlichen Banken, die auch in den aufgelisteten Staaten ansässig sind, unterzogen, um das spezifische in den Einflussfaktoren herausarbeiten zu können. Entsprechend der besonderen Rahmenbedingungen, die *Shari'ah*-konforme Banken ausgesetzt sind, umfasst die Regressionsanalyse speziell folgende Determinanten der Liquiditätstransformation, die nach der Methode von Deep und Schäfer (2004) gemessen wird: Kapitalisierung, Größe der Bank, Nachfrage am Interbankenmarkt sowie Risiko im Produktportfolio der Aktivseite.[18] Es lässt sich empirisch feststellen, dass die Liquiditätstransformation *Shari'ah*-konformer Banken insbesondere mit der Kapitalisierung sinkt und mit der Größe steigt. Die Bedeutung der Größe als entscheidender Faktor zum Zugang von Refinanzierungsquellen in Form des Einlagengeschäfts und zur Möglichkeit der Diversifizierung im Produktportfolio, findet eindeutige Evidenz in den Untersuchungen. Welche Bedeutung die Bankgröße für die Refinanzierung und die Liquiditätstransformation hat, verdeutlicht sich auch dadurch, dass der Interbankenmarkt keinen Einfluss ausübt. Die geringe Diversifikation und das niedrige Risikoniveau im Produktportfolio *Shari'ah*-konformer Banken zeigt sich dadurch, dass die Liquiditätstransformation positiv auf jede zusätzliche Risikoaufnahme reagiert. Die Kapitalisierung als Verlustpuffer wird umso wichtiger, je beschränkter der Zugang zu

[17] Vgl. Archer/Karim (2007), Specific Corporate Governance Issues in Islamic Banks, in: Archer/Karim (Hrsg.), Islamic Finance: The Regulatory Challenge, John Wiley & Sons, Singapore, 121-131; Merton (1977), An Analytic Derivation of the Cost of Deposit Insurance and Loan Guarantees, Journal of Banking and Finance, 1, 3-11.
[18] Deep/Schaefer (2004), Are Banks Liquidity Transformers?, Harvard University, John F. Kennedy School of Government, Faculty Research Working Paper Series RWP04-022.

Refinanzierungsquellen ist. Das bedeutet mit sinkender Marktliquidität steigt die Risikoaversion im Produktportfolio, die die Liquiditätstransformation sinken lässt. Schließlich sind im Vergleich zu großen *Shari'ah*-konformen Banken entsprechende kleine Pendants besser in der Lage Risiken zu steuern und damit die Liquiditätstransformation zu erhöhen. Dies ist zum Einen auf die höhere Kapitalisierung zurückzuführen, aber auch auf Spezialisierungsvorteile. Daraus lässt sich implizit folgern, dass der Trade-Off zwischen Spezialisierung und der Zugang zu Refinanzierungsquellen zu Gunsten Ersterer ausfällt in Bezug auf die Erhöhung der Liquiditätstransformation.

2.2. Forschungsleitende Hauptfrage (2)[19]

Das Risiko im Finanzproduktportfolio einer *Shari'ah*-konformen Bank wird beeinflusst von besonderen marktspezifischen und bankinstitutionellen Faktoren. In der Literatur herrscht eine geteilte Meinung darüber, inwiefern ein Zielkonflikt zwischen einem höherem Wettbewerb am Bankenmarkt und der Stabilität in diesem Markt existiert. Entsprechend diesem Zielkonflikt sind Banken dann bereit ein höheres Risiko im Produktportfolio einzugehen, wenn der gestiegene Bankenwettbewerb einhergeht mit sinkenden zukünftigen Erträgen.[20] *Shari'ah*-konforme Banken stehen in einem dualen Finanzsystem, in dem das *Shari'ah*-konforme und das westliche Finanzsystem parallel

[19] Vgl. Alman (2012b), Determinants of Shari'ah-typical Equity-Based Contracts at Islamic Banks, Konferenzbeitrag: Eastern Finance Association (EFA), Tampa, Florida 2013; Alman (2012c), Shari'ah Supervisory Board Compo-sition Effects On Islamic Banks' Risk-Taking Behavior, Konferenzbeiträge: European Financial Management Association (EFMA), Reading 2013; Multinational Finance Society (MFS), Izmir 2013.

[20] Vgl. Leibenstein (1966), Allocative Efficiency vs. X-efficiency, American Economic Review, 56, 392-415. Demsetz (1973), Industry Structure, Market Rivalry, and Public Policy, Journal of Law and Economics, 16, 1-9; Allen/Gale (2004), Competition and Financial Stability, Journal of Money, Credit and Banking, 36(3), 453-480; Boyd/De Nicol´o (2005), The Theory of Bank Risk Taking and Competition Revisited, Journal of Finance, 60(3), 1329-1343; Martinez-Miera/Repullo (2010); Does Competition Reduce the Risk of Bank Failure?, Review of Financial Studies, 23(10), 3638-3664; Brunnermeier at al. (2010), Banks' Non-Interest Income and Systemic Risk, mimeo; Keeley (1990), Deposit Insurance, Risk and Market Power in Banking, American Economic Review, 80(5), 1183-1200; Stiglitz/Weiss (1981), Credit Rationing in Markets with Imperfect Information, American Economic Review, 393-410; Bhattacharya et al. (1998), The Economics of Bank Regulation, Journal of Money, Credit and Banking, 30(4), 745-770.

vorhanden sind, nicht nur im internen Wettbewerb, sondern sie konkurrieren genauso mit westlichen Banken.[21] Zur Untersuchung des Einflusses des Wettbewerbs am Bankenmarkt auf das Risikoverhalten muss demzufolge differenziert werden zwischen dem Gesamtmarkt, dem *Shari'ah*-konformen Markt sowie dem westlichen Markt. In der empirischen Untersuchung wird das Risiko im Finanzproduktportfolio der Aktivseite durch den Anteil eigenkapitalnaher *Shari'ah*-konformer Instrumente am Gesamtportfolio approximiert. Über den Zeitraum von 2000 bis 2009 werden für die Analyse Daten von *Shari'ah*-konformer Banken aus dem Nahen und Mittleren Ostens, Nordafrika sowie aus Südostasien berücksichtigt. Neben bankindividuellen unabhängigen Variablen (Größe, Kapitalisierung, Liqudität) werden getrennt voneinander, die Wettbewerbsindikatoren des gesamten, *Shari'ah*-konformen sowie westlichen Bankenmarkts regressiert auf die definierte abhängige Risikovariable *Shari'ah*-konformer Banken. Die empirischen Analysen zeigen, dass zunächst ein negativer Zusammenhang zwischen steigender Konzentration am gesamten Bankenmarkt und des Risikos im Finanzproduktportfolio festzustellen ist. *Shari'ah*-konforme Banken sind bereit ein höheres Risiko einzugehen, wenn der interne Wettbewerb steigt. Während es Hinweise dafür gibt, dass zwischen den großen Banken beider Finanzsysteme ein Verdrängungswettbewerb vorliegt, sind kleine *Shari'ah*-konforme Banken davon kaum betroffen. Dadurch kann implizit gefolgert werden, dass im Gegensatz zu ihren großen Vertretern, die Spezialisierung es den kleinen *Shari'ah*-konformen Banken ermöglicht eine komplementäre Rolle im Bankenmarkt einzunehmen und auf diese Weise dem Wettbewerb weniger ausgesetzt zu sein.

Auf der bankinstitutionellen Ebene ist ein besonderes Merkmal *Shari'ah*-konformer Banken darin zu sehen, dass es neben einem gewöhnlichen Aufsichtsrat ein zusätzliches Aufsichtsorgan existiert, das sogenannte *Shari'ah* Supervisory Board (SSB). Dieses Organ

[21] Vgl. Dar/Presley (2000); Lack of Profit and Loss Sharing in Islamic Banking: Management and Control Imbalances, Economic Research Paper No. 00/24, Loughborough University; Gait/Worthington (2008), An Empirical Survey of Individual Consumer, Business Firm and Financial Institution Attitudes Towards Islamic Methods of Finance, International Journal of Social Economics, 35, 11, 783-808; Cevik/Charap (2011), The Behavior of Conventional and Islamic Bank Deposit Returns in Malaysia and Turkey, IMF Working Paper, WP/11/156.

besteht nach der Regelung der AAOIFI aus insgesamt mindestens drei Mitgliedern und es wird, nach Vorschlag des Vorstands, von den Anteilseignern ernannt.[22] Die Funktion dieses Aufsichtsorgans besteht in der Zertifizierung und Prüfung von Vertragskonstruktionen, Finanzinstrumenten und des weiteren gesamten Geschäftsablaufs entsprechend der *Shari'ah* im Namen von Anteilseignern, Stakeholdern und Einlegern. Ihre Kompetenz umfasst auch eine Risikomanagementfunktion, insbesondere bei der Zulassung neuer Finanzprodukte, die es der Bank ermöglicht im Produktportfolio höhere Risiken einzugehen. Daher schützt ein SSB auch die Interessen der Depositeninhaber vor übermäßigem Risiko im Finanzproduktportfolio einer Bank auf der Aktivseite, insbesondere vor dem Hintergrund fehlender formaler Einlagensicherung, die typischerweise gegeben ist.[23] Das SSB stellt neben dem Vorstand, dem Aufsichtsrat und der Hauptversammlung ein weiteres wichtiges theoretisch unabhängiges Organ dar, das i.S.d. *Shari'ah* eine interne Regulierungsaufgabe hat. Der Nominierungs- und Ernennungsvorgang der Mitglieder des SSBs und ihrem Angestelltenverhältnis in der Bank führen allerdings zu Interessenkonflikten. Die Entscheidungen des SSBs unterliegen einem Zielkonflikt zwischen der Profitabilität und Konformität mit der *Shari'ah*, der umso kritischer in einem hohen Wettbewerbsumfeld ist. Weitere Formen des Interessenkonflikts sind dadurch gegeben, dass aufgrund der begrenzten Anzahl von *Shari'ah*-Gelehrten, sie gleich mehrere Mandate gleichzeitig ausüben. So haben die Top-10-Gelehrten im Durchschnitt etwa 45 Mandate inne und vereinen ca. 40% der verfügbaren Positionen auf sich.[24] Diese konzentrierten Mandatsstrukturen stellen die Unabhängigkeit dieses Organs in Frage und führen zu weiteren Interessenkonflikten. In der

[22] Vgl. zu den Anforderungskriterien eines *Shari'ah* Supervisory Boards, Nienhaus (2007), S. 136, Governance of Islamic Banks, in: Hassan/Lewis (Hrsg.), Handbook of Islamic Banking, Edward Elgar, Cheltenham (UK) u.a., S. 128-143.

[23] Vgl. El-Hawary (2007), Diversity in the Regulation of Islamic Financial Institutions, Quarterly Review of Economics and Finance, 46, 778-800; Grais/Pellegrini (2006), Corporate Governance and *Shariah* Compliance in Institutions Offering Islamic Financial Services, World Bank Policy Research Working Paper 4054; Deloitte (2010), S.17, The Deloitte Islamic Finance leaders survey in the Middle East: Benchmarking practices.

[24] Vgl. Ünal (2011), S. 13, The Small World of Islamic Finance: Shariah Scholars and Governance – A Network Analytic Perspective, v. 6.0, Funds@Work.

Literatur spielen die Determinanten der Aufsichtsratsstruktur sowie ihr Einfluss auf das Management eine zentrale Rolle. Vor diesem Hintergrund werden für den Zeitraum von 2000 bis 2010 der Einfluss der Eigenschaften eines SSBs auf das Risikoverhalten im Produktportfolio einer *Shari'ah*-konformen Bank empirisch analysiert. Die Untersuchung wird auf Basis von Bankdaten aus dem Nahen und Mittleren Ostens, Nordafrika sowie aus Südostasien durchgeführt. Die Kausalität der Beziehung zwischen Eigenschaften des Aufsichtsorgans und Unternehmenseigenschaften verlangt nach sehr robusten empirischen Methoden, um endogene Effekte zu minimieren.[25] Die empirischen Untersuchungen zeigen einen negativen Zusammenhang zwischen der Risikoaversion im Produktportfolio auf der Aktivseite einer *Shari'ah*-konformen Bank und der Mitgliederanzahl im SSB, der Mandatsanzahl der einzelnen Mitglieder sowie der Fluktuation im SSB. Die Disziplinierungsfunktion eines SSBs in der Risikobereitschaft einer Bank ist insbesondere dann geschwächt, wenn ein dezentrales Modell der *Shari'ah*-konformen Bankenaufsicht verfolgt wird, in dem jede einzelne Bank über ein unabhängiges SSB verfügt. Schließlich zeigen die Analysen, dass sich das Geschäftskonzept *Shari'ah*-konformer Banken in Bezug auf ihr Risikoverhalten im Produktportfolio auf der Aktivseite sich den Eigenschaften eines SSBs anpasst und nicht andersherum.

2.3. Forschungsleitende Hauptfrage (3)[26]

Shari'ah-konformen Private Equity Firmen stehen nicht vergleichbare Instrumente der

[25] Vgl. Yermack (1996), Higher Valuation of Companies with a Small Board of Directors, Journal of Financial Economics, 40, 185-212; Hermalin/Weisbach (1998), Endogenously Chosen Boards of Directors and Their Monitoring of the CEO, American Economic Review 88, 96-118; Hermalin/Weisbach (2003), Boards of Directors as an Endogenously Determined Institution: A Survey of the Economic Literature, in: FRBNY Economic Policy Review, 7-26.

[26] Vgl. Alman (2012d), Shari'ah-compliant Private Equity Provider: Theory and Evidence, Konferenzbeitrag: Financial Management Association (FMA) European Conference, Luxembourg 2013 zugleich angenommen für FMA Annual Conference, Chicago 2013; Alman (2012e), Einflussfaktoren Shari'ah-konformer Eigenfinanzierungen auf Venture Capital-Finanzierungsentscheidungen nicht-finanzieller Unternehmen, Working Paper Uni-Bamberg 2012.

anreizkompatiblen Vertragsgestaltung zur Verfügung, um Prinzipal-Agenten-Probleme zu minimieren.[27] Da Private Equity Finanzierungen grundsätzlich verbunden sind mit hoher asymmetrischer Information und Moral Hazard, insbesondere im Falle kleiner und innovativer Unternehmen, ist die Untersuchung der Strategie und der Allokation im Portfolio von Private Equity Firmen, die im Rahmen der *Shari'ah* operieren sehr interessant.[28] Nach Gompers (1995) sind folgende drei Instrumente notwendig, um typische Risiken bei Private Equity Finanzierungen kontrollieren zu können: 1) Wandelbare Finanzierungsinstrumente (Convertibles), 2) Syndizierung der Investitionen, 3) Stufenfinanzierung.[29] Ersteres ist im Rahmen der *Shari'ah* nicht zugelassen, weshalb per Annahme die anderen beiden Instrumente eine höhere Bedeutung in der Vertragsgestaltung einnehmen sollten, die jedoch mit höheren Transaktionskosten oder mit eigenen Risiken verbunden sein können.[30] Zudem erfordern die Restriktionen in der Vertragsgestaltung eine sehr strategische Ausrichtung (Spezialisierung, Diversifikation) im Portfolio *Shari'ah*-konformer Private Equity Firmen, um, insbesondere auch vor dem Hintergrund der adversen Selektionsgefahr in einem dualen Finanzsystem, Intermediationsvorteile in der Koordination (Synergieeffekte), in den Transaktionskosten sowie in der Netzwerkbildung effizient zu nutzen.[31] Allerdings können die Restriktionen in

[27] Vgl. Jensen/Meckling (1976), Theory of the Firm – Managerial Behavior, Agency Costs and Ownership Structure, Journal of Financial Economics, 3, 4, 305-360; Aghion/Bolton (1992), An Incomplete Contracts Approach to Financial Contracting, Review of Economic Studies, 59, 473-494.

[28] Vgl. Berger/Udell (1998), The Economics of Small Business Finance: The Roles of Private Equity and Debt Markets in the Financial Growth Cycle, Journal of Banking & Finance, 22, 613-673; Cassar (2004), The Financing of Business Start-ups, Journal of Business Venturing, 19, 261-283.

[29] Vgl. Gompers (1995), Optimal Investment, Monitoring, and the Staging of Venture Capital, Journal of Finance, 50, 5, 1461-1489; Admati/Pfleiderer (1994), Robust Financial Contracting and the Role for Venture Capitalists, Journal of Finance, 49, 371-402.

[30] Vgl. Mirakhor/Zaidi (2007), Profit-and-Loss Sharing Contracts in Islamic Finance, in: Hassan/Lewis (Hrsg.): Handbook of Islamic Banking, Edward Elgar, Cheltenham, 49-63; Lewis/Algaoud (2001), Islamic Banking, Edward Elgar, Cheltenham; Iqbal/Molyneux (2005a), Thirty Years of Islamic Banking: History, Performance and Prospects, Palgrave Macmillan, Hampshire and New York; Sahlman (1990), The Structure and Governance of Venture Capital Organizations, Journal of Financial Economics, 27(2), 473-521; Kaplan/Strömberg (2003), Financial Contracting Theory Meets the Real World: An Empirical Analysis of Venture Capital Contracts, Review of Economic Studies, 70(2), 281-315; Tian (2012), The Role of Venture Capital Syndication in Value Creation for Entrepreneurial Firms, Review of Finance, 16, 245-283; Lerner (1994), The Syndication of Venture Capital Investments, Financial Management, 23, 3, 16-27.

[31] Vgl. Van Greuning/Iqbal (2007), Banking and the Risk Environment, in: Archer/Karim (Hrsg.): Islamic Finance: The Regulatory Challenge, John Wiley & Sons, Singapore, 11-39; Akacem (2008); Islamic Banking and Finance: Beyond "Shari'ah" Arbitrage, Review of Islamic Economics, 12, 2, 67-85; Gassner/Wackerbeck

der Vertragsgestaltung ebenso zu einer höheren Standardisierung in den Transaktionsbeziehungen führen, so dass die Transaktionskosten sinken. In einer Befragung *Shari'ah*-konformer Private Equity Firmen kann mit hoher statistischer Evidenz festgestellt werden, dass unabhängig von der Größe, vom Gesellschaftertyp (bspw. Minderheits- oder Mehrheitsgesellschafter) sowie von der Erfahrung (Alter) ein spezialisiertes und konservatives Investitionsverhalten bei der Portfolioauswahl vorliegt. Dabei wurden u.a. das Unternehmensalter der Portfoliounternehmen, die Finanzierungsstufe, der Länderfokus sowie die Branche als Kriterien der Portfolioauswahl betrachtet. Darüber hinaus kann festgestellt werden, dass Syndizierung und Stufenfinanzierung als zugelassene Instrumente zum Interessenausgleich, keine besondere Rolle in der Vertragsgestaltung mit den Portfoliounternehmen spielen. Die konsistente konservative Portfolioauswahl impliziert, dass die Spezialisierung nicht ausreicht, um die Agency-Kosten im Zusammenhang mit riskanteren Investitionen in einem vertretbaren Maße zu reduzieren. Allerdings wird die konservative Portfolioauswahl auch von den relativ schwachen rechtlichen und institutionellen Rahmenbedingungen beeinflusst, die *Shari'ah*-konforme Private Equity Firmen, insbesondere in Staaten des Nahen und Mittleren Ostens sowie Nordafrikas (MENA) vorfinden, so dass die Bewältigung von Informationsasymmetrien und Verhaltensunsicherheiten umso schwerwiegender ist.[32]

Neben den Folgen für die Anbieterseite, stellt sich die Frage, welchen Einfluss *Shari'ah*-konforme Finanzinstrumente auf die Finanzierungsentscheidungen nicht-finanzieller Unternehmen haben. Da die anreizkompatible Vertragsgestaltung im Rahmen der *Shari'ah* eingeschränkt ist, liegt der Analysefokus auf Frühphasenfinanzierungen (Venture Capital), in

(2010), Islamic Finance: Islam-gerechte Finanzanlagen und Finanzierungen, 2. Auflage, Bank-Verlag Medien, Köln.

[32] Vgl. LaPorta/Lopez-de-Silanes/Shleifer/Vishni (1997), Legal Determinants of External Finance, Journal of Finance, 52, 3, S. 1131-1150; Nach einem Index des Heritage Foundation/Wall Street Journal, der anhand von verschiedenen Kriterien die Entwicklung von rechtlichen und wirtschaftlichen Rahmenbedingungen des Finanzsystems in einem Land erfasst, erreichen MENA-Staaten durchschnittlich nur 60 von 100 möglichen Punkten.

der gerade die Interessengegensätze am kritischsten sind und die eigenkapitalnahen Finanzierungsalternativen für ein junges und innovatives Unternehmen v.a. in Kontinentaleuropa gering sind. Zudem entsprechen eigenkapitalnahe Beteiligungsfinanzierungen, wie insbesondere *Musharakah* und *Mudarabah*, dem Ideal der *Shari'ah.*[33] Die Hauptfragestellung ist, welche *Shari'ah*-konformen eigenkapitalnahen Finanzierungsinstrumente von welchen Anbietern theoretisch einen Nutzen gegenüber westlichen Pendants stiften können. Für die vergleichende Analyse westlicher und *Shari'ah*-konformer eigenkapitalnaher Finanzierungsinstrumente wird für Ersteres folgende Auswahl getroffen: Eigenfinanzierung, typische und atypische stille Beteiligungen sowie Genussscheine. Die qualitativen Analysen zeigen im Vergleich der entsprechenden Finanzinstrumente, dass aus Unternehmenssicht potentielle Nutzen aus *Shari'ah*-konformen Eigenfinanzierungen in der Frühphase zu erwarten sind. Trade-Offs von *Shari'ah*-konformen Venture Capital Gesellschaften (VCG) über Erfolgs- und Risikoteilungen sowie zu deren Absicherung getroffenen weiteren vertraglichen Hauptbestandteilen (Covenants) sind begrenzt einsetzbar, aufgrund des negativen Einflusses auf die Leistungsanreize im Portfoliounternehmen (PU), der Kosten von Trade-Off-Maßnahmen sowie dem Wettbewerb gegenüber v.a. westlichen Anbietern.[34] Daher sind potentielle Nutzen nicht direkt über die Erfolgs- und Risikoteilung, sondern in Folge der Anpassungen des Risikomanagements einer VCG an die *Shari'ah* zu erwarten. Aufgrund hoher Informationsasymmetrien und Verhaltensunsicherheiten in der Frühphase und bei innovativen Unternehmen, sind *Shari'ah*-konforme VCGen sehr selektiv bei der Auswahl von PU, die im Zuge dessen eine hohe Transparenz gegenüber dem Kapitalgeber verlangen.[35]

[33] Vgl. Rashid (2005), S. 228 ff.; Islamic Finance and Venture Capital: A Practical Approach, in: Iqbal/Wilson (Hrsg.): Islamic Perspectives on Wealth Creation, Edinburgh University Press, Edinburgh; Durrani/Boocock (2006), S. 159 ff., Venture Capital, Islamic Finance and SMEs: Valuation, Structuring and Monitoring Practices in India, Palgrave Macmillan, New York.

[34] Vgl. Dar/Presley (2000), S. 3 f., Lack of Profit and Loss Sharing in Islamic Banking: Management and Control Imbalances, Economic Research Paper No. 00/24, Loughborough University; Iqbal/Molyneux (2005a), S. 143 f., Thirty Years of Islamic Banking: History, Performance and Prospects, Palgrave Macmillan, Hampshire and New York.

[35] Vgl. Visser (2009), S. 85 ff., Islamic Finance: Principles and Practice, Edward Elgar, Cheltenham (UK) u.a.;

Beim Zustandekommen einer Transaktionsbeziehung sind gerade im Fall einer spezialisierten VCG, dafür umso mehr Wertsteigerungsmaßnahmen und Kooperationen gegenüber dem PU zu erwarten statt der Ausübung von kostenintensiven Kontrollrechten bzw. der aufwendigen Durchsetzung von Vereinbarungen (Covenants) zur Absicherung der getroffenen Hauptvertragsbestandteile. Die Bedeutung der Unterstützung und der operativen Einflussnahme von VCGen für den Kooperationserfolg mit ihren PU und deren Wettbewerbsfähigkeit, steigt umso mehr im Rahmen der *Shari'ah*.[36] Aus Sicht der VCG stehen mit der Syndizierung und der Stufenfinanzierung begrenzte Mittel zum Interessenausgleich zur Verfügung, die wiederum eigene Gestaltungsrisiken verursachen. Daher erfordert dieser Zustand von einer VCG eine sehr hohe Betreuungsintensität und sehr tiefe Beratungsleistung, die eine Spezialisierung erfordert, um Agency-Kosten zu minimieren und Wertsteigerungen zu maximieren.[37] Aus Sicht von PU ist eine Abwägung zwischen der hohen Flexibilität von westlichen Finanzinstrumenten und den möglichen vielversprechenden Betreuungsmaßnahmen im Falle von spezialisierten VCGen zu treffen. Die Analyse der Portfolioinvestitionen *Shari'ah*-konformer Private Equity Firmen zeigt jedoch, dass diese Risiken mit einer Spezialisierung nur im geringen Maße aufzufangen sind. Daher nehmen wir an, dass *Shari'ah*-konforme eigenkapitalnahe Beteiligungsinstrumente sich eher für weniger riskante PU eignen sowie eine tendenziell komplementäre als substitutive Finanzierungsfunktion haben, da alternative westliche Finanzinstrumente eine höhere Flexibilität aufweisen.

Sundararajan/Errico (2002), S. 12 ff., Islamic Financial Institutions and Products in the Global Financial System: Key Issues in Risk Management and Challenges Ahead, IMF Working Paper, WP 02/192.

[36] Vgl. Inderst/Mueller (2009), Early-stage Financing and Firm Growth in New Industries, Journal of Financial Economics, 93, S. 276-291; Tian (2012), The Role of Venture Capital Syndication in Value Creation for Entrepreneurial Firms, Review of Finance, 16, 245-283; Hellmann/Puri (2002), Venture Capital and the Professionalization of Start-Up Firms: Empirical Evidence, Journal of Finance, 57, S. 169-197.

[37] Vgl. Iqbal/Molyneux (2005a), S. 136, Thirty Years of Islamic Banking: History, Performance and Prospects, Palgrave Macmillan, Hampshire and New York; Akkizidis/Khandelwal (2007), S. 39 ff., Financial Risk Management for Islamic Banking and Finance, Palgrave MacMillan, Hampshire.

2.4. Bestandteile der kumulativen Dissertation

Hiermit erkläre ich, ob und in welcher Form die Arbeit bereits publiziert ist:

Nr.	Autor	Titel	Veröffentlichung
1	Alman	What Drives the Liquidity Transformation in Islamic Banks?	Konferenzbeitrag: European Financial Management Association (EFMA), Braga 2011; Multinational Finance Society (MFS), Krakau 2012; Financial Management Association (FMA), Atlanta 2012.
2	Alman	Determinants of *Shari'ah*-typical Equity-Based Contracts at Islamic Banks	Konferenzbeitrag: Eastern Finance Association (EFA), Tampa, Florida 2013.
3	Alman	*Shari'ah* Supervisory Board Composition Effects On Islamic Banks' Risk-Taking Behavior	Konferenzbeitrag: European Financial Management Association (EFMA), Reading 2013; Multinational Finance Society (MFS), Izmir 2013.
4	Alman	*Shari'ah*-compliant Private Equity Provider: Theory and Evidence	Konferenzbeitrag: Financial Management Association (FMA) European Conference, Luxembourg 2013; Angenommen für Financial Management Association (FMA), Chicago 2013.
5	Alman	Einflussfaktoren *Shari'ah*-konformer Eigenfinanzierungen auf Venture Capital-Finanzierungsentscheidungen nicht-finanzieller Unternehmen	Working Paper Uni-Bamberg 2012

Tabelle 1: Dissertationsportfolio

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Kapitel II

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What Drives the Liquidity Creation in Islamic Banks?

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II What Drives the Liquidity Creation in Islamic Banks?

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Abstract

Islamic banks face restrictions in refinancing due to the guidelines of the *Shari'ah*, prohibiting financial contracts and transactions based on interest, gambling, and speculation as well as due to the lack of liquidity sources, such as an interbank market, a lender of last resort, or an asset market. This is the first study with empirical cross-country results focusing on the liquidity creation of Islamic banks. Over the period from 2000 to 2010, we analyze how the financial system and institutional characteristics of Islamic banks influence their liquidity creation. We include bank data from Islamic countries in the Middle East and Northern Africa as well as in Southeast Asia. Our results reveal evidence that liquidity creation is negatively affected by the regulation of Islamic banks. The specifics regarding the creation of liquidity in Islamic banks are strongly supported by our comparison to a control group of (interest-based) Western banks. Liquidity creation in Islamic banks is negatively determined by capitalization and positively determined by bank size especially. Our results suggest that liquidity creation in Islamic banks is independent of interbank markets. We find support for the fact that small Islamic banks or those which are based in countries within the Gulf Cooperation Council (GCC) can absorb risks due to higher specialization and capitalization, leading to positive effects on liquidity creation.

Key words: Islamic banking, Liquidity creation, Bank-risk

JEL classification: G21, G32, E51

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1. Introduction

The recent financial crisis has raised fundamental issues about the liquidity creation role of banks and liquidity requirements from the banking regulation point of view (see Basel III). During financial crises the liquidity creation function of banks, as one of the key reasons for its existence, suffers, with severe consequences for the macroeconomy (see Bryant 1980, Diamond and Dybvig 1983, Acharya 2009). Liquidity risk management is one of the most important challenges for banks, particularly for Islamic banks related to the restrictions mandated by the *Shari'ah*, the unique and global legislation for Muslims that includes the *Quran, Hadith (Sunna), Ijma,* and *Qiyas* as its main sources. *Shari'ah*-compliant contracts prohibit interest, gambling, and speculation in terms of *Riba*, *Gharar,* and *Maysir* and require profit and loss sharing (equity-based) backed by a real asset which underlies negative branch and company individual (capital structure) screening criteria (see Table 1 in the appendix, Quran: 2:275-2:280, Lewis and Algaoud 2001, Mirakhor and Iqbal 2007). Sources for refinancing using an interbank market, a lender of last resort, or an asset market are very limited for Islamic banks. Thus, they have no comprehensive options for term and risk transformations, usually two of the main functions of a financial intermediary (see Bitz/Stark 2008, Oehler 2006, El-Hawary et al. 2007, Sundararajan and Errico 2002), which has implications on their ability to create liquidity (see Bhattacharya et al. 1998, Berger and Bouwman 2009). According to the restrictions in refinancing, Islamic banks are financed mainly by deposits with a share of approximately two-thirds of total liabilities. Their deposits have two main forms: current accounts (*Wadiah*, *Qard Hassan*) and investment accounts ((un-)restricted *Mudarabah*), whereby the latter represent about two-thirds of total deposits (see Fakih 2009, Khan and Mirakhor 1987, Visser 2009). Because they are funded by deposits, keeping the maturity of assets and liabilities in balance is very challenging, which hinders Islamic

banks from creating liquidity in the same manner as their counterparts who operate according to the conditions of Western industrialized countries (referred to as simply Western in the following). Due to this imbalance, short-term fixed-income contracts typically dominate the product portfolio with about 80%, although profit and loss sharing (equity-based) is a main principle of the *Shari'ah.* Thus, the product portfolio exhibits a low diversification and a low risk structure, which also results from weak legal, institutional, and financial conditions, leading to high degrees of asymmetric information, opportunistic behavior, and liquidity constraints as well as to higher capital costs, which is also related to market segmentation (see Aggarwal and Yousef 2000, Chong and Liu 2007, Al-Hassan et al. 2010, Hearn et al. 2010, Choudhury and Hoque 2006). So, the preferences of Islamic banks to shift into liquid assets in their product portfolios are rational and optimal. This is even more the case in a dual financial system as equity-based contracts that are typical to the *Shari'ah* are associated with possible adverse selection between the Western and the Islamic financial system (see Van Greuning and Iqbal 2007, Akacem 2008, Visser 2009). A further important difference between Islamic banks and their Western counterparts is the non-existence of explicit or implicit deposit insurance for the former (see Archer and Karim 2007; for deposit insurance characteristics of Western banks, see Table 2 in the appendix) that can lead to incentives for increasing capitalization and decreasing the risks banks take (see Merton 1977) in creating their liquidity.

The purpose of this study is to analyze the influence that the restrictions placed on *Shari'ah*-compliant financial instruments and refinancing sources have on the liquidity creation in Islamic banks. The underlying intuition is that the liquidity creation of Islamic banks is negatively affected by the *Shari'ah*-compliant regulation on the institutional bank level as well as on the level of the product portfolio. Given this, we examine how the specific characteristics of Islamic banks in terms of capitalization, size, interbank demand, and risk-taking behavior in the

loan portfolio hinder them from creating liquidity in a way that is comparable to their Western counterparts. Thus, for robustness and comparability, we also apply the empirical model to a control group of Western banks that operate under same macroeconomic conditions. If our results are driven by a local bias, then both banking systems are affected in the same way. Prior studies that have examined the intermediation functions of Islamic banks; particularly the liquidity risk management requirements are based on theoretical or on empirical analyses which are restricted to one country or which have a descriptive character (see Iqbal and Molyneux 2005, Khan and Ahmed 2001, Obiyathulla 2008, Rosly 2005, Brown et al. 2007). To our knowledge, this is the first cross-country empirical study that focuses on the determinants of liquidity creation in Islamic banks. Specifically, we examine the bank institutional and loan product portfolio determinants of liquidity creation in Islamic banks with a selected sample that comprises 82 Islamic banks over the period from 2000 to 2010. Examining this time period contributes to our goal of achieving robust results; hence, our analyses cover the global financial crisis as well as non-crisis years. One important limitation of our study pertains to addressing the question of how country-specific institutional traits influence the liquidity creation of Islamic banks (see La Porta et al. 1998, 2000, Demirgüc-Kunt, et al. 2004, Laeven and Levine 2009). This is due to the availability of data, for existing country-specific institutional indicators which reflect the status of the Western financial system rather than the Islamic system. However, our robustness tests aims at gaining insights into the relevance of these country-specific determinants.

Our results provide significant and robust evidence for our theoretical predictions, which also apply to a control group of Western banks. An Islamic bank's ability to create liquidity decreases with its capitalization and increases with its size especially. The size of a bank is important because it affects its access to refinancing sources. This is also supported through our results that the interbank demand position has no explanatory effect. On the level of the product

portfolio, we find evidence that additional risk-taking increases the diversification and illiquidity in the loan portfolio and, thus, the creation of liquidity. We find out particularly for Islamic banks outside of the GCC that risk-aversion is more strongly positively related to capitalization compared to their counterparts in GCC.[1] Small Islamic banks or those which are based in the GCC are better able to absorb risks in increasing liquidity creation due to higher capitalization. In addition, our results indicate a strong negative size effect on liquidity creation for small Islamic banks, confirming the benefits of specializing in loan portfolio risk-taking, particularly towards *Shari'ah*-compliant equity contracts.

The remainder of the paper is organized as follows: Section 2 presents the review of the related literature on the function of creating liquidity and liquidity risks of banks and how this study extends the existing work. In Section 3, we describe our dataset and methodology and discuss our results. Section 4 concludes our paper.

2. Related Literature and Development of Hypotheses

Within the framework of risk and term transformations of financial intermediaries, the latter undertake particularly the tasks of creating liquidity and insuring for inter-temporal smoothing of income and consumption of economic agents. The intermediaries insure against liquidity shocks by liquidity pooling of deposits: Part of the liquidity serves as liquidity reserves and the rest is used for profitable illiquid investments (see Bryant 1980, Diamond and Dybvig 1983, Bhattacharya and Thakor 1993, Diamond and Rajan 2001, Kashyap et al. 2002). Liquidity risk can occur on the liability side as well as on the asset side, and it has an exceptional position

[1] The *Gulf Cooperation Council (GCC)* consists of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. It was founded 1981 in Abu Dhabi to establish a cooperation in several fields, including economics, politics, and culture.

in regulating banks (see Basel III). While the risk types of default, price, and operation have to be secured with minimum equity capital (see Basel I, II, 2.5, III), liquidity risk is subject to limitations. The external sources of liquidity transfers are the interbank market, the asset market and typically the central bank's role of a lender of last resort. In the literature, there are numerous studies referring to the role that banks and their determinants play in creating liquidity. Our paper is related to the large amount of literature that describes the role of interbank markets and their influence on stability, regulation, and on the incentive of banks to hold liquid assets (see Bhattacharya and Gale 1987, Allen and Gale 2004, Acharya et al. 2008, Allen et al. 2009, Brunetti et al. 2009, Cai and Thakor 2009, Diamond and Rajan 2009, Freixas et al. 2009). This paper is also related to the synergies between liquidity creation and risk that can be influenced on the individual bank level by diversifying and structuring their product portfolios (see Diamond 1996, Acharya et al. 2006, Behr et al. 2007, Lepetit et al. 2008), by size or by capital structure (see Boyd and Runkle 1993, Diamond and Rajan 2000, Koziol and Lawrenz 2009). Liquidity creation and risk can be influenced on the macroeconomic level by the development and structure of financial sector institutions and refinancing sources (see Cole et al. 2008, Dinger and Von Hagen 2009, Demirgüc-Kunt et al. 2004). In the literature, there are two competing views on the relationship between bank capital and liquidity creation. While the "financial fragility-crowding out" hypothesis (see Diamond and Rajan 2000, 2001, Gorton and Winton 2000, Berger and Bouwman 2009) predicts that liquidity creation decreases with bank capital, the "risk-absorption" hypothesis (see Bhattacharya and Thakor 1993, Repullo 2004, Berger and Bouwman 2009) supports the view that higher bank capital strengthens the ability to absorb risk and so to create liquidity. On the individual bank level, there are also different strands of literature about optimal organizational forms. Traditional banking theory predicts, in a delegated monitoring argument, infinite diversification benefits and therefore reduction of risks on asset-side and liability-side

(see Diamond 1984, Boyd and Prescott 1986), which is supported by a few studies (see Kashyap et al. 2002, Gatev et al. 2005). Another strand of literature finds contrary results indicating that there are no diversification benefits and even diseconomies with increasing risk, so that specialization outweighs the benefits of risk-sharing (see Hellwig 1998, DeYoung and Roland 2001, Stiroh 2004).

Empirical evidence based on the measurement of bank liquidity creation can be found in two particular studies. First, Deep and Schaefer (2004) approximated liquidity creation as the scaled difference between liquid liabilities and liquid assets to total assets. They ran a panel regression analysis on data from the 200 largest US banks in the ranking of total assets from 1997 to 2001. The unexpectedly low liquidity creation of only about 20% that was yielded is explained with deposit insurance rather than with credit risk in loan portfolios. Second, a different and more generalized approach for measuring liquidity creation is conducted by Berger and Bouwman (2009). They classified loans according to four measures that are built according to the criteria of product category and maturity; thus, in contrast to Deep and Schaefer (2004), Berger and Bouwman also included off-balance sheet activities. In the panel regression analysis, the authors included almost all US banks active from 1993 to 2003 and found the level of dependence of bank capital and liquidity creation differed for small, middle, and large intermediaries. One of their main results is the positive relationship between capital and liquidity creation for large banks, while it is negative for small banks.

Based on these strands of literature, the main goal of the current study is to analyze how Islamic banks' liquidity creation responds to restrictions from the *Shari'ah* that influence capitalization, refinancing, and product portfolio (risk) structure. We expect that the liquidity creation in Islamic banks is negatively affected by the *Shari'ah*-compliant regulation on the

institutional bank level as well as on the level of product portfolio. As the capitalization of Islamic banks is the decisive capital buffer against asset-side defaults, we predict in line with the "financial fragility-crowding out" hypothesis a risk-averse behavior in the loan portfolio and thus, a negative influence on liquidity creation. This should be even more evident in the absence of deposit insurance, leading to incentives for increasing capitalization and decreasing bank-risk-taking behavior (see Merton 1977). Therefore, we analyze the following hypothesis:

Hypothesis 1: The liquidity creation in Islamic banks is inversely related to capitalization.

According to Deep and Schaefer (2004) as well as Berger and Bouwman (2009), we expect that bank size has a positive influence on liquidity creation. Our assumption is that large Islamic banks profit from widespread deposit-gathering networks and from loan portfolio risk diversification, especially regarding the restricted refinancing sources. Thus, we examine the following hypothesis:

Hypothesis 2: Liquidity creation in Islamic banks increases with bank size.

Because of the restrictions on the interbank market for Islamic banks, they are strongly dependent on deposit funding. So, our assumption is that the interbank demand position should play a minor role in explaining the liquidity creation. Thus, we establish the third hypothesis:

Hypothesis 3: Liquidity creation in Islamic banks is not affected by their interbank demand position.

Finally, as the loan product portfolio of Islamic banks typically exhibits a low level of diversification and risk, we predict that additional loan portfolio risk-taking is associated with increasing liquidity creation. The domination of short-term fixed-income contracts would be weakened by increasing term and risk transformation, leading to higher liquidity creation. This leads to our last hypothesis:

Hypothesis 4: Liquidity creation increases with loan portfolio risk-taking of Islamic banks.

Our study explores the existing studies at least in the following aspects: First, the determinants of liquidity creation are studied for Islamic banks which do not operate under comparable conditions as their Western counterparts on the level of the financial system, on the institutional (bank) level, and on the level of the product portfolio. Second, within this framework, we analyze banks in a developing Islamic financial system, wherein they are mainly financed through deposits and practice a conservative strategy towards their leverage position on the liability side and in their loan portfolio on the asset side (see Fakih 2009). The fact that they are funded by deposits influences the product portfolio structure on the asset side in such that sources for long-term financings are limited. This hinders Islamic banks from creating liquidity in a way that is comparable to Western banks. Third, we compare the liquidity creation behavior of (explicitly/implicitly) deposit insured Western banks (see Table 2 in the appendix) with their Islamic counterparts without deposit insurance. Finally, while most of the empirical studies related to this research field focus on US or European data, our study focuses on a cross-country sample of banks based in the Middle East and Northern Africa as well as in Southeast Asia.

3. Empirical Analysis

3.1. Dataset

Our empirical analysis is based on a sample consisting of an unbalanced panel of annual and unconsolidated report data of Islamic banks over the time period from 2000 to 2010. The inclusion of annual accounting data is necessary since (x type of) data is frequently not available. The choice of this time period has the advantage that it covers a cyclical downturn and upturn in world economics and that Islamic banking experienced the strongest growth with annual rates of

on average 20%. Another important fact why the current study is restricted to this time period is due to data availability. The source of the bank data used for the empirical estimates stems from Bankscope (Bureau van Dijk Electronic Publishing). In our analysis, we include only Islamic banks from countries with a dual financial system in the sense that the Islamic and the Western financial system exist in parallel. A further characteristic of the dataset is that every bank is represented with annual reports of at least 2 years over this period. Furthermore, we limit our analysis to banks which are full-fledged Islamic banks, thus their Western (interest-based) counterparts with separate Islamic departments ("Islamic windows") are excluded. A further criterion to data choice is that the banks are based in countries where Muslims form the majority of the population. Finally, for comparability under similar developmental conditions, we restrict our study to Islamic banks from high-income to lower-middle-income economies according to the classification by the World Bank. The entire sample which fulfills these criteria consists of 82 banks from 16 countries.

Please insert Table 3 about here.

As Table 3 illustrates, 45 banks are from GCC. In our data set, their concentration of total assets is about 56% on average over the period from 2000 to 2010. Over the whole period, almost all Islamic and Western banks in our sample are privately owned and they are mainly publicly quoted. Macro level data are derived from the World Economic Outlook Databases of the International Monetary Fund and from the Heritage Foundation/Wall Street Journal. These criteria leave us with a data sample that contains 481 reports over the entire period. For the robustness of our results and in order to ensure a comparable basis, we consider a control group of Western banks with similar total assets and macroeconomic conditions. This control group is also characterized by an unbalanced panel of annual and unconsolidated report data set,

consisting of 55 banks with 473 reports over the period from 2000 to 2010. As suggested in Table 4, this sample covers 29 Western banks from member states of the GCC.

Please insert Table 4 about here.

From each report, we collect proxies for liquidity, capitalization, size, interbank demand, and loan portfolio risk. We choose the intuitive and simple measurement construction of bank liquidity creation as presented by Deep and Schaefer (2004) because of the restricted data available. However, this measure can capture the liquidity creation of Islamic banks better than that of their Western counterparts because off-balance sheet activities for the former, such as guarantees or derivatives, are mostly forbidden by the *Shari'ah*. While Berger and Bouwman (2009) find that US banks create almost half of their liquidity off the balance sheet with significantly more influence on large banks, Deep and Schaefer (2004) indicate that off-balance sheet liquidity creation plays a minor role and only constitutes somewhere between 15 to 20% of total assets. So, the results of the following regression analysis and consequently their interpretations should be treated carefully due to the restricted set of reported data that is available for Islamic banks that fulfills the criteria specified above and due to the endogeneity problem between liquidity creation and the characteristics of the banks in this study. We use several econometric methods to achieve robust and valid results, as discussed in the methodologies of the following chapter.

The characterization of descriptive statistics in the following is based on the median values for brevity (see Table 5 in the appendix for mean values). Beginning with the liquidity creation variable (LC), we, as expected, can observe a lower value for Islamic banks (48.21%) than for their Western counterparts (60.26%). As observed in several other studies before, Islamic banks are higher capitalized (17.52%) than their Western counterparts (11.11%) (see e.g. Beck et

al. 2010). The higher capitalization acts as an additional capital buffer and decreases the maturity mismatch in the balance sheet of Islamic banks, which lowers their liquidity risk. Next, regarding the interbank demand positions (IBP), we observe that it is higher for Islamic banks (154%) than for their Western counterparts (108%). According to this difference in the median values, there is stronger evidence for Islamic banks than for their Western counterparts that they are net placer rather than net borrower of funds in the market (see Bankscope glossary). We expect this even more for emerging markets where banks are usually confronted with stronger macroeconomic risk and a lack of legal and regulatory environment, which lead to difficulties in enforcing contracts and so to liquidity hoarding by banks, so that intermediary functions cannot be fulfilled efficiently (see Aspachs et al. 2004, Acharya et al. 2009, Bansal et al. 2010). Comparing the relation of LC and IBP in the Islamic and Western sample, we observe, as expected, a trade-off between the two variables. Finally, we can observe an ambivalent behavior for our loan portfolio risk measures, as is also reported by Beck et al. (2010). While Islamic banks have a lower LLR than their Western counterparts (3.42% vs. 4.05%), the opposite is true for LLP (1.00% vs. 0.61%). We would expect that both levels of LLP and LLR are higher for the Western sample, indicating a riskier loan portfolio.

Please insert Tables 5 and 6 about here.

3.2. Methodology

The analysis of determinants of liquidity creation for Islamic banks and for a control group of Western banks is based on the estimations of the following empirical model:

$$LC_{i,j,t} = \beta_0 + \beta_1 LC_{i,j,t-1} + \beta_2 Cap_{i,t} + \beta_3 Size_{i,t} + \beta_4 IBP_{i,t} + \beta_5 Risk_{i,t} + \beta_6 Y_{j,t} + \varepsilon_{i,j,t}, \quad (1)$$

wherein the dependent variable $LC_{i,j,t}$ measures the liquidity creation for bank *i* in country *j* at time *t* which is defined as the difference between liquid liabilities and liquid assets scaled by total

assets. At the individual bank level, we include the following explanatory variables: $Cap_{i,t}$ is a variable for the bank's capitalization that is captured by the ratio of equity to total assets. To regard the effects of bank size, we choose the variable $Size_{i,t}$ that is defined as total assets in natural logarithm to account for non-linear relations. The interbank demand position $IBP_{i,t}$ is proxied by the ratio of assets lent to other banks scaled to assets borrowed from other banks (see e.g. Dinger and Von Hagen 2009). For measuring (credit) risk in a bank's loan portfolio with $Risk_{i,t}$, we use loan loss reserves to gross loans (LLR) and alternatively loan loss provisions to gross loans (LLP) (see Dinger and Von Hagen 2009, Stolz 2007, Beck et al. 2010, Berger et al. 2011). We regard alternative loan portfolio risk proxies, as these have a low number of observations which might cause biased results. Measures of bank risks, which are typically used in the literature, such as the Z-index[2], the standard deviation of return on assets or the ratio of nonperforming loans to total loans (see e.g. Laeven and Levine 2009, Delis and Staikouras 2011) could not be considered due to the low amount of data and data availability. $Y_{j,t}$ is a vector of macroeconomic control variables at the country level to proxy the development status, including the following factors: Per capita GDP, annual percentage change of GDP (GDP growth), annual percentage change of inflation, and an index of economic freedom (FI) by the Heritage Foundation/Wall Street Journal (see Dinger and Von Hagen 2009). The index covers ten benchmarks of economic development, such as business freedom, property rights, or fiscal freedom to approximate the institutional development of a country's financial system. Finally, we include $\varepsilon_{i,j,t}$ as the error term. As provided in Table 6, correlations between the variables used in the empirical analysis are not critical enough to consider multicollinearity problems.

[2] The Z-index is defined as the sum of the return on assets and equity to assets in the numerator and the standard deviation of the return on assets in the denominator.

The idea behind the LC variable by Deep and Schaefer (2004), or the liquidity transformation gap ("LT gap") as they defined it, is that a bank creates a relatively high liquidity if it is financed by mostly liquid deposits and if it holds a portfolio dominated by illiquid loans. In this manner, the measure of liquidity creation is an approach based on maturity rather than product category in the sense of loan portfolio classification (see Berger and Bouwman 2009). The values of LC lie in the range of -1 and +1. A value of zero means that a given bank does not create liquidity. An extreme LC value of +1 indicates a bank financed completely by deposits and that only holds illiquid loans, while it is equivalently the other way around for the opposite extreme value of -1. Thus, the higher the LC measure, the more liquidity a bank creates. According to Bankscope's definition, liquid assets capture loans with less than three months to run to maturity and additionally quoted or listed government bonds and cash. Liquid liabilities from the perspective of a bank include customer and interbank deposits.

Given the endogeneity problems in the sample, estimations based on ordinary least squares (OLS) would produce inconsistent results. In such, to control for endogeneity and to take unobserved heterogeneity on the individual bank level into account, we use a dynamic panel regression based on the generalized method of moments (GMM) as suggested by Arellano and Bond (1991) and by Blundell and Bond (1998) with predetermined and lagged endogenous variables in first differences. Before applying multivariate analyses, we conduct univariate tests to segregate the explanatory effects of the included variables. In the following section, we do not discuss and report the results of the lagged dependent variable for the sake of brevity. For each regression, we test the null hypothesis that the over-identifying restrictions are valid (Sargan Test). Further controls for robustness are the estimations for different subsamples, which are constructed according to the criteria of country focus (GCC vs. non-GCC) and of bank size focus (large vs. small). We differentiate between banks from GCC and from non-GCC in terms of the

macroeconomic homogeneity, the regional financial sector integration as well as the higher competition rather concentration in the former countries (see e.g. Al-Hassan et al. 2010, Espinoza et al. 2010). Bank market power encourages banks to create liquidity by attracting more funds and by diversification benefits in the loan portfolio (see Petersen and Rajan 1995). However, this is not the focus of our study and it should be treated with more in detail in a study on its own. To consider possible specialization respective to diversification benefits, we distinguish between large and small banks, using the median bank size (US$ 1.94bn for Islamic banks and US$ 2.62bn for Western banks) in total assets as the cutoff criterion to determine comparable weightings between the two subsamples. Finally, we apply the model to a control group of Western banks to analyze and interpret the specificities of Islamic banks towards their Western counterparts. As both banking systems operate under the same macroeconomic conditions, we assume that a possible local bias affects the results with Islamic and Western banks on the same way. Alternative subsamples to control the robustness of our results and to avoid biases specific to the given time period could be constructed by regarding subperiods, differentiating particularly between the years of the global financial crisis and non-crisis years. Because of a lack of data, this is not possible and it should be left for further research. However, several empirical studies confirm the stronger financial stability of Islamic banks compared to their Western counterparts, considering also the financial crisis years, which result from higher capitalization and higher liquidity reserves (see Beck et al. 2010, Cihak and Hesse 2010, Al-Hassan et al. 2010, Hasan and Dridi 2010). Therefore, we assume that the financial crisis years did not significantly impact the results in Islamic banks. As Table 7 reports, the difference tests that apply the Mann-Whitney U-Test strongly support the robustness checks with subsample compositions according to country and bank size focus.

From our hypotheses, we raised two questions: 1) Which characteristics are attributable to Islamic banks? and 2) Which result from the macroeconomic and institutional conditions under a dual financial system in a given country? Separating the two effects is very difficult due to interdependencies and individual bank factors, but our methodological approach contributes to finding answers and explanations.

Please insert Table 7 about here.

3.3. Results

3.3.1. Entire Sample of Banks

In our broad sample, our hypotheses are mostly supported by the regression specifications. The coefficients for capitalization, size and interbank demand on the individual bank level have the expected signs and explanatory effects with strong significances on the 1% level in our univariate as well as multivariate analyses. The most significant and robust influences result primarily from capitalization and from size. While, for example, a 1% point higher equity capital ratio lowers liquidity creation by over 0.77% points, a 1% point higher bank size in total assets creates additional liquidity of over 6.5% points. Relying on higher equity ratio and needing also an additional capital buffer against asset side defaults under restricted refinancing sources lower the amount of liquidity created in Islamic banks. In such, the empirical results are consistent with the theoretical notion that banks with higher equity capital are involved in less risky projects and so create a lower degree of liquidity even more in the absence of deposit insurance (see Merton 1977). Thus, our results, derived from the total sample of Islamic banks, support the "financial fragility-crowding out" hypothesis (see Diamond and Rajan 2000, 2001, Gorton and Winton 2000, Berger and Bouwman 2009). In line with Deep and Schaefer (2004) as well as Berger and Bouwman (2009), large Islamic banks create more liquidity, profiting especially from widespread

deposit gathering networks and from further *Shari'ah*-compliant refinancing sources as well as from risk diversification in their loan portfolio. So, following El-Hawary et al. (2007), this implies that with increasing size, Islamic banks can better diversify risks if they are associated with asset backed short-term or medium-term maturity investments to keep the maturity of assets and liabilities in balance. The interbank demand position has no explanatory effect at all, implicating the importance of deposit-based refinancing sources. The influences of the alternative loan portfolio risk measures are mixed for Islamic banks, but the positive effect dominates in significance and in explanatory value. When considering the loan product portfolio of Islamic banks, which is characterized by low diversification and low risk structure with a shift into liquid assets, we find significant evidence that additional risk-taking accompanied by illiquidity increases the liquidity creation. Concerning the macroeconomic control variables, the economic freedom index and per capita GDP does not have a (significant) impact on the liquidity creation. GDP growth significantly increases liquidity creation, indicating the cyclical impact. Finally, inflation has negative influence on liquidity creation, but this is not robust to the alternative model specification. The null hypothesis that the over-identifying restrictions are valid is rejected through the Sargan Test. In sum, we can conclude however that, according to the proxy of liquidity creation by Deep and Schaefer (2004), the specific characteristics of an Islamic bank on the institutional bank level as well as on the product portfolio level are associated with a lower level of liquidity creation. Summarized results are provided in Table 8.

Please insert Table 8 about here.

3.3.2. Checking for Robustness

In this section, we check the robustness of our regression results from the complete sample by constructing subsamples that focus on country and bank size as well as by comparing them to a control group of Western banks to shed more light on the specificities of Islamic banks.

We start by examining the subsamples of Islamic banks from GCC and from non-GCC, as well as of large and small Islamic banks according to the cutoff of the median bank size in total assets (US$ 1.94bn for Islamic banks and US$ 2.62bn for Western banks) to obtain comparable weightings. The empirical results of the subsamples confirm our hypotheses even stronger than the total sample. Our expectations about the explanatory variables on the institutional bank as well as on the product portfolio levels are mostly fulfilled with very significant results on the 1% level in nearly all of the Islamic banks. Beginning with the subsamples focused on countries as presented in the Tables 10 and 11, we find that the decreasing effect of capitalization towards liquidity creation is weaker for Islamic banks from GCC than from non-GCC.

Please insert Tables 10 and 11 about here.

This is due to higher capitalization levels but also due to higher market liquidity with more alternative refinancing sources for Islamic banks based in GCC (see Table 7). Regarding the explanatory effect of size, there are mixed results between Islamic banks based in GCC and in non-GCC. We expect, however, that the explanatory effect of the bank size is larger for Islamic banks from non-GCC than from GCC because the former are more dependent on local deposit-gathering networks as they operate often in a developing Islamic financial sector with lower market liquidity and more restricted refinancing sources. The non-explanatory effect of the interbank demand position for both subsamples emphasizes again the importance of deposit-based refinancing sources. On the product portfolio level, the relationship between loan portfolio risk-taking and liquidity creation is positive for Islamic banks from GCC, while it is negative for their counterparts from non-GCC. Regarding this, a 1% point increase in loan portfolio risk e.g. is associated with additional liquidity creation of over 0.93% points at Islamic banks from GCC and with a decreasing liquidity creation of over 0.2% points at their counterparts from non-GCC. The

risk-bearing of Islamic banks from GCC in difference to their counterparts from non-GCC is positively related to liquidity creation, concerning to higher capitalized banks as well as lower asymmetric information and opportunistic behavior in more developed financial sectors in the former case than in the latter case (see Table 7). Thus, stronger capitalization as well as increasing refinancing sources makes it possible for Islamic banks to increase their liquidity creation by shifting into more risky and illiquid assets in the product portfolio. Considering the macroeconomic control variables, it is striking that the economic freedom index is significantly positive for Islamic banks based in GCC, while it is significantly negative for their counterparts from non-GCC. The remaining variables on the macroeconomic level behave similarly to the total sample for both subsamples.

Continuing with the results of the subsamples and focusing on bank size as illustrated in Tables 12 and 13, our results support the inverse relation between capitalization and liquidity creation according to our first hypothesis, but there are mixed findings between large and small Islamic banks.

Please insert Tables 12 and 13 about here.

In parallel to the results of the subsamples with country focus, we would expect that this inverse relation is stronger for large than small banks due to the fact that the capitalization of small Islamic banks is twice as much as their large counterparts (see Table 7). We find strong support for small Islamic banks that the benefits of specializing in high-risk investments dominate to increase liquidity creation, while large banks profit from diversification effects in low-risk to medium-risk investments with increasing size to fulfill the liquidity function (see also El-Hawary et al. 2007). In contrast to their small counterparts, the higher risk-diversification in the loan portfolio of large Islamic banks allows them to hold lower levels of liquid assets and,

therefore, to increase liquidity creation. For small Islamic banks, a 1% point increase of bank size in total assets lowers liquidity creation of over 8.06% points. Thus, in contrast to the delegated monitoring argument (see Diamond 1984, Boyd and Prescott 1986) the agency costs increase with a bank's growing diversification and size. On the product portfolio level, the relationship between loan portfolio risk-taking and liquidity creation is positive for small Islamic banks, while it is negative for their large counterparts. This, however, is not robust to the alternative risk measure in each of the specifications. According to that, for example, a 1% point increase in loan portfolio risk creates additional liquidity of over 0.82% points at small Islamic banks and lowers liquidity creation of over 3.70% points at their large counterparts. Assuming that small bank size is related to a specialization strategy and equivalently large bank size is referred to a diversification strategy, the former strategy dominates the latter in the risk management of *Shari'ah*-compliant equity-based contracts, which are comparable to private equity or venture capital. In contrast to Berger and Bouwman (2009), the ability of small Islamic banks to absorb risk is stronger than for large Islamic banks, especially because capitalization of the former is more than twice the size of the latter, and even more concerning to the non-existence of deposit insurance. Thus, we can follow from our results, that there is a trade-off between specialization benefits of small Islamic banks and the access to widespread refinancing sources of their large counterparts in increasing liquidity creation.

When comparing the results of Islamic banks with those of Western banks, there is strong evidence that the explanatory factors on the institutional bank level as well as on the product portfolio level have very different influences on liquidity creation. This is true for the total sample and for the subsamples focused on individual countries and bank sizes. For brevity purposes, we focus in the following on the comparison in the total sample, as the differences in

the subsamples increase even more. As provided in Table 9, decreasing liquidity creation with increasing bank capitalization is weaker for Western banks than for their Islamic counterparts.

Please insert Table 9 about here.

In contrast to Islamic banks, the size factor has a strong significantly negative effect on liquidity creation of their Western counterparts. This might be explained through increasing off-balance sheet and decreasing on-balance sheet activities through larger size that are not captured by the liquidity measure used in this study. In common with the control group, the interbank demand has no explanatory effect. While the influences of the alternative loan portfolio risk-variables are mixed for Islamic banks, the risk proxies impact the liquidity creation of their Western counterparts consistently and significantly negatively. On the macroeconomic level, the most remarkable difference results from the variable of economic freedom index. In contrast to Islamic banks, in which there is no significant impact, the liquidity creation in Western banks is significantly reduced by increasing economic freedom. One potential explanation for this finding is that increasing economic freedom implicates financial system development; in such, alternative intermediaries that create liquidity increase towards Western banks. Thus, under typical circumstances Islamic banks face, they cannot create liquidity as one of its main intermediary functions on the same level as their Western counterparts.

In sum, the regression results of the total sample, the subsamples, and also in comparison to the control group, support our hypotheses that the typical characteristics an Islamic bank faces, especially concerning capitalization, size, interbank demand, and risk-bearing behavior in the loan portfolio, determine their liquidity creation. The robustness of the results is further supported by the fact that the Sargan Test for over-identifying restrictions rejects the null hypothesis. In contrast to the findings by Berger and Bouwman (2009), the relationship between capitalization

and liquidity creation is consistently negative independent of the size of a bank. The control group of Western banks reveals that these characteristics influence their liquidity creation differently. From the descriptive analysis, we observe the consistent higher capitalization of Islamic banks compared to their Western counterparts and conclude that capitalization serves as an additional capital buffer against defaults and decreases the maturity mismatch in the balance sheets of Islamic banks, which, in turn lowers the liquidity risk. This is supported by the fact that, in terms of higher loan portfolio risk-taking, liquidity creation is associated with decreasing capitalization. Thus, we find out that liquidity creation by increasing loan portfolio risk-taking requires high levels of capitalization, as it is the case for Islamic banks from GCC and for their small counterparts. In consequence, for these types of banks, their capitalization allows liquidity creation with high-risk investments. Regarding the differences in the significance levels of the individual bank factors in both Islamic and Western banks, we conclude a possible interdependency that exists between the institutional development of an Islamic financial system and the specificities of Islamic banks. Thus, we can implicate that the economic preconditions are, in principle, the same for both financial systems; however, the institutional developments make the distinction under which banks have to function as intermediaries. This is also supported by the differing influences of macroeconomic control variables. The developing institutional conditions affect Islamic banks in such a way that the liquidity creation is particularly influenced by capitalization, size, and loan portfolio risk-taking. For the Islamic banks, we can interpret that they adapt their business model to the institutional development of the Islamic financial sector, including refinancing sources as well as to the possibilities of *Shari'ah*-compliant intermediation and to the absence of deposit insurance.

4. Conclusions

The business of Islamic banking is restricted under the guidelines of the *Shari'ah*, the unique and global legislation for Muslims. According to the *Shari'ah*, interest, gambling, and speculation is prohibited and financial contracts should be based on real assets and on profit and loss sharing (equity-based). Furthermore, financial investments underlie negative and financial screens which are comparable to a broader case of social responsible investments (SRI). Due to the restrictions of the *Shari'ah* and the lack of refinancing sources, the loan portfolio of an Islamic bank is typically dominated by short-term fixed-income contracts. The objective of this study is to analyze the determinants of liquidity creation specific to Islamic banks. Our underlying intuition is that liquidity creation is negatively affected by the *Shari'ah*-compliant regulation of Islamic banks. We expected that the specifics of Islamic banks on the institutional bank level as well as on the individual bank product portfolio level in terms of capitalization, size, interbank demand, and loan portfolio risk-taking, hinder them from creating liquidity in a manner that is comparable to their Western counterparts. To test this, we conducted a dynamic panel data analysis with a selected sample of Islamic banks over the period from 2000 to 2010. To approximate liquidity creation, we use the measure presented by Deep and Schaefer (2004). The empirical results confirm our hypotheses and they are mostly robust for alternative specifications, subsamples as well as for a control group of Western banks with comparable sample characteristics. Thus, the liquidity creation in Islamic banks decreases with capitalization and increases with bank size particularly. The importance of bank size for gaining access to deposit-based refinancing sources is also revealed through the fact that the interbank demand position of Islamic banks has no explanatory value at all. Hence, with increasing size, Islamic banks profit from more deposits and also liquidity, which in consequence lowers the risk of equity and improves the independence of external refinancing sources. On the product portfolio

level, we find significant evidence that additional risk-taking increases the diversification in the loan portfolio and so liquidity creation. Finally, we can conclude that the restrictions in refinancing lead to the preference of higher capitalization and higher liquidity holdings compared to Western banks, from which a strong concentration on asset backed short-term to medium-term investments in the loan portfolio follows, which limits the ability of Islamic banks to create liquidity.

Possible areas for further research, especially if more comprehensive data are available, is to determine how Islamic bank behavior in creating liquidity will change if more innovation in financial instruments takes place and if more alternative refinancing sources exist. The latter will depend in particular on financial sector development, so it would be interesting to observe the parallel processes. Will Islamic banks adjust to be more in line with Western banks or will they continue to specialize and differ from their Western counterparts? Another interesting research question is how the liquidity creation in Islamic banks differs from Western banks when regarding subperiods (e.g. crisis years and non-crisis years), bank concentration and competition, or several other bank institutional characteristics, such as the ownership structure and the merger status, for example (see Laeven and Levine 2009). Moreover, further analyses and tests for robustness could be done for the current study through alternative measures of liquidity creation (see e.g. Berger and Bouwman 2009, Berger et al. 2011).

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Appendix

Table 1
***Shari'ah*-compliant negative and financial screens.**

1. Stage: Negative branch and company individual screens.
Tobacco industry;
Weapons and defence Industry;
(Interest-based) Financial intermediaries of Western industrial countries;
Producing, selling, distilling or distributing alcoholic beverages;
Producing, selling, slaughting or distributing pork;
Entertainment industry (music, cinema, pornography, theatres, etc.);
Gambling activities (casinos, lotteries, betting);
Companies engaged in products related to aborted human foetuses or in human cloning;
Pollutive companies;
Employee dicsriminating companies.
2. Stage: Company individual financial ratio and leverage screens.
Debt / market value of equity < 33%;
Liquid assets + interest bearing debt / market value of equity < 33%;
Accounts payable from trade and delivery / market value of equity < 33%;
Revenue generated in the above negative screens / overall revenue < 5%.

Source: Own illustration.
Notes: The *Shari'ah*-compliance control of an asset underlying a financial contract is a two-step procedure according to the disqualifying criteria in the list above. The fulfillment of the first stage builds the precondition for the second stage. First, the spectrum of *Shari'ah*-compliant assets is restricted under qualitative branch and company individual criteria. In the second step, there is mainly controlled the fulfillment of leverage ratios differing in the maturity. This step includes also a criterion with a combined qualitative and quantitative screening in which the isolated checking of an asset is left.

Table 2
Deposit insurance for Western banks with years of establishment/revision in parentheses as of 2003.

Country	*Explicit deposit insurance*	*Implicit deposit insurance*
GCC countries		
Bahrain (1993)	1	0
Kuwait	0	1
Qatar	0	1
Saudi Arabia	0	1
UAE	0	1
Non-GCC countries		
Brunei	0	1
Egypt	0	1
Indonesia (1998)	1	0
Iraq	0	1
Jordan (2000)	1	0
Lebanon (1967)	1	0
Malaysia (1998)	1	0
Syria	0	1
Tunisia	0	1
Turkey (1983/2000)	1	0
Yemen	0	1
Total	6	10

Source: Demirgüc-Kunt et al. (2008).

Table 3
Geographic and annual distribution of the sample with Islamic banks.

Country	*Number of banks*	*Annual observations*
GCC countries		
Bahrain	19	116
Kuwait	8	48
Qatar	5	31
Saudi Arabia	3	16
UAE	10	60
Non-GCC countries		
Brunei	2	9
Egypt	2	21
Indonesia	1	7
Iraq	2	6
Jordan	3	31
Lebanon	2	7
Malaysia	15	65
Syria	1	4
Tunisia	1	10
Turkey	4	22
Yemen	4	28
Total	*82*	481

Source: Own illustration based on Bankscope, Bureau van Dijk Electronic Publishing.
Notes: The Gulf Cooperation Council (GCC) consists of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. It was founded in 1981 to cooperate in several fields as in economy, politics and culture. This country focus distribution is chosen concerning to high macroeconomic homogeneity,,their comparable market shares in the assets managed by Islamic banks as well as higher Islamic bank market competition inside than outside the GCC countries.

Table 4
Geographic and annual distribution of the sample with Western banks.

Country	*Number of banks*	*Annual observations*
GCC countries		
Bahrain	9	76
Kuwait	3	27
Qatar	4	35
Saudi Arabia	6	66
UAE	7	75
Non-GCC countries		
Egypt	3	28
Indonesia	2	22
Jordan	1	2
Lebanon	3	15
Malaysia	8	51
Syria	2	13
Tunisia	3	22
Turkey	4	41
Total	*55*	473

Source: Own illustration based on Bankscope, Bureau van Dijk Electronic Publishing.

Table 5
Descriptive statistics for Islamic and Western banks from 2000 to 2010.

	LC	Cap	Size (Mil. USD)	IBP	LLR	LLP	Economic freedom	Per capita GDP	GDP growth	Inflation
Sample 1: Islamic										
Mean	35.063	27.975	9,517.362	1,383.106	7.418	3.672	65.497	17,121.534	5.579	4.633
Median	48.205	17.520	1,481.846	154.405	3.420	0.995	65.830	12,066.050	5.391	2.618
Std. Dev.	40.606	26.637	42,865.819	7,626.893	13.657	30.307	8.911	16,425.790	3.715	7.544
Maximum	92.107	100.000	693,000.000	81,217.100	100.000	557.680	76.332	91,477.777	17.723	55.035
Minimum	-100.000	-1.700	18.947	0.000	0.000	-48.000	15.582	532.421	-5.697	-4.865
Observations	468	483	480	342	359	362	732	890	888	888
Sample 2: Western										
Mean	55.227	13.222	9,732.225	166.986	7.461	1.159	63.788	16,191.693	5.531	4.862
Median	60.260	11.110	3,347.175	108.820	4.045	0.612	63.600	10,398.685	5.383	2.785
Std. Dev.	20.698	8.104	13,279.199	180.501	9.329	2.781	7.880	17,038.934	3.694	7.857
Maximum	89.566	56.550	75,299.204	979.170	54.370	27.652	76.332	91,477.777	17.723	55.035
Minimum	-20.833	0.000	96.000	0.050	0.000	-14.356	36.291	772.661	-5.697	-4.865
Observations	473	473	473	378	432	453	529	605	605	605

Source: Own illustration based on Bankscope, Bureau van Dijk Electronic Publishing.
Notes: This table reports the descriptive statistics of the regarded dependent and independent variables in this study. The descriptive statistics are reported for the total sample of Islamic and Western banks.
Variable definitions: LC = liquidity creation gap in percent; Cap = equity to total assets; Size = natural logarithm of total assets in USD; IBP = interbank ratio; LLR = loan loss reserves to gross loans; LLP = loan loss provisions to gross loans; Economic freedom = Heritage Foundation/Wall Street Journal economic freedom index; Per capita GDP = gross domestic product per capital; GDP growth = annual percentage change of gross domestic product; inflation = annual percentage change of inflation.

Table 6
Correlation statistics between the variables used in the empirical analysis.

	1	2	3	4	5	6	7	8	9	10
1. LC	1.000									
2. Cap	-0.465	1.000								
3. Size	0.037	-0.034	1.000							
4. IBP	-0.113	0.010	-0.011	1.000						
5. LLR	0.042	-0.038	-0.007	-0.053	1.000					
6. LLP	-0.170	0.238	-0.006	0.006	0.718	1.000				
7. Economic freedom	-0.023	0.222	0.011	-0.237	0.207	0.110	1.000			
8. Per capita GDP	0.147	0.191	0.117	-0.129	-0.116	-0.003	0.333	1.000		
9. GDP growth	-0.060	0.118	-0.130	-0.014	-0.053	-0.052	0.091	0.160	1.000	
10. Inflation	-0.026	0.038	-0.082	0.138	-0.123	0.018	-0.436	0.089	0.163	1.000

Notes: This table reports the correlation coefficients between the regarded dependent and independent variables used in the empirical analysis.
Variable definitions: LC = liquidity creation gap in percent; Cap = equity to total assets; Size = natural logarithm of total assets in USD; IBP = interbank ratio; LLR = loan loss reserves to gross loans; LLP = loan loss provisions to gross loans; Economic freedom = Heritage Foundation/Wall Street Journal economic freedom index; Per capita GDP = gross domestic product per capital; GDP growth = annual percentage change of gross domestic product; inflation = annual percentage change of inflation.

Table 7
Difference tests between subsamples referring to dependent and independent variables.

	Total	*GCC*	*Non-GCC*	**Mann-Whitney U-Test**	*Large*	*Small*	**Mann-Whitney U-Test**
	Median	Median	Median		Median	Median	
LC	48.205	45.837	51.315	0.226	60.240	18.750	0.000***
Cap	17.520	25.540	9.750	0.000***	13.115	26.420	0.000***
Size (Mil. USD)	1,481.846	1,498.608	1,471.691	0.883	4,588.740	506.697	0.000***
IBP	154.405	120.335	226.495	0.000***	137.830	175.960	0.047**
LLR	3.420	3.510	3.370	0.288	3.130	5.015	0.000***
LLP	0.995	0.725	1.010	0.031**	0.785	1.100	0.030**
Economic Freedom	65.830	69.700	58.131	0.000***	64.822	67.414	0.003***
Per capita GDP	12,066.050	21,523.210	4,160.940	0.000***	11,657.490	13,710.520	0.002***
GDP growth	5.391	5.644	5.332	0.000***	5.553	5.230	0.489
Inflation	2.618	2.248	3.049	0.000***	2.263	2.618	0.586

Notes: This table reports the results of difference tests between subsamples for the regarded dependent and independent variables in this study. We use the Mann-Whitney U-Test to do the difference tests in which the *p*-values are reported in the table. We built subsamples according to country focus (GCC vs. non-GCC) and bank size focus (large vs. small). Our Chi-square tests confirm the independence of these subgroups, so that we can exclude biases resulting from relationships between the criteria of country and bank size focus.
Variable definitions: LC = liquidity creation gap in percent; Cap = equity to total assets; Size = natural logarithm of total assets in USD; IBP = interbank ratio; LLR = loan loss reserves to gross loans; LLP = loan loss provisions to gross loans; Economic freedom = Heritage Foundation/Wall Street Journal economic freedom index; Per capita GDP = gross domestic product per capital; GDP growth = annual percentage change of gross domestic product; inflation = annual percentage change of inflation.
*** and ** indicate significance respectively at the 1% and 5% levels.

Table 8
Complete sample of Islamic banks.

Dependent variable: LC							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Bank individual variables							
Cap	-0.782***					-0.773***	-0.957***
	(0.098)					(0.041)	(0.042)
Size		5.809***				7.770***	6.582***
		(0.774)				(1.916)	(1.434)
IBP			0.000***			0.000***	0.000***
			(0.000)			(0.000)	(0.000)
LLR				-0.036		-0.135**	
				(0.062)		(0.066)	
LLP					0.229***		1.296***
					(0.036)		(0.027)
Macro variables							
Economic freedom						0.078	-0.291
						(0.200)	(0.255)
Per capita GDP						-0.001***	-0.001***
						(0.000)	(0.000)
GDP growth						1.399***	1.271***
						(0.258)	(0.208)
Inflation						-0.358*	-0.014
						(0.217)	(0.124)
No of Obs.	287	284	195	222	212	146	145
Sargan Test	0.501	0.422	0.430	0.861	0.605	0.525	0.634

Notes: This table reports results from dynamic panel GMM estimation with predetermined and lagged endogenous variables in first differences (see Arellano and Bond 1991, Blundell and Bond 1998) for our empirical model described in Section 3.2. For each regression, we test the null hypothesis that the over-identifying restrictions are valid (Sargan test). The *p*-values of the Sargan tests are reported in the table.

Variable definitions: LC = liquidity creation gap in percent; Cap = equity to total assets; Size = natural logarithm of total assets in USD; IBP = interbank ratio; LLR = loan loss reserves to gross loans; LLP = loan loss provisions to gross loans; Economic freedom = Heritage Foundation/Wall Street Journal economic freedom index; Per capita GDP = gross domestic product per capital; GDP growth = annual percentage change of gross domestic product; inflation = annual percentage change of inflation.

***, ** and * indicate significance respectively at the 1%, 5% and 10% levels. Standard errors are in parantheses.

Table 9
Complete Sample of Islamic banks with control group of Western banks.

Dependent variable: LC				
	Islamic Banks	*Western Banks*	*Islamic Banks*	*Western Banks*
	(1)	(2)	(3)	(4)
Bank individual variables				
Cap	-0.773***	-0.332***	-0.957***	-0.519***
	(0.041)	(0.118)	(0.042)	(0.136)
Size	7.770***	-6.379***	6.582***	-5.924***
	(1.916)	(1.487)	(1.434)	(1.682)
IBP	0.000***	-0.001	0.000***	-0.003
	(0.000)	(0.004)	(0.000)	(0.001)
LLR	-0.135**	-0.121**		
	(0.066)	(0.062)		
LLP			1.296***	-0.149*
			(0.027)	(0.084)
Macro variables				
Economic freedom	0.078	-1.832***	-0.291	-1.742***
	(0.200)	(0.142)	(0.255)	(0.165)
Per capita GDP	-0.001***	0.000***	-0.001***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
GDP growth	1.399***	0.503***	1.271***	0.498***
	(0.258)	(0.082)	(0.208)	(0.065)
Inflation	-0.358*	-0.456***	-0.014	-0.543***
	(0.217)	(0.152)	(0.124)	(0.074)
No of Obs.	146	262	145	276
Sargan Test	0.525	0.457	0.634	0.337

Notes: This table reports results from dynamic panel GMM estimation with predetermined and lagged endogenous variables in first differences (see Arellano and Bond 1991, Blundell and Bond 1998) for our empirical model described in Section 3.2. We regard here Islamic and Western banks for the alternative loan portfolio risk variables (LLR, LLP). For each regression, we test the null hypothesis that the over-identifying restrictions are valid (Sargan test). The *p*-values of the Sargan tests are reported in the table.
Variable definitions: LC = liquidity creation gap in percent; Cap = equity to total assets; Size = natural logarithm of total assets in USD; IBP = interbank ratio; LLR = loan loss reserves to gross loans; LLP = loan loss provisions to gross loans; Economic freedom = Heritage Foundation/Wall Street Journal economic freedom index; Per capita GDP = gross domestic product per capital; GDP growth = annual percentage change of gross domestic product; inflation = annual percentage change of inflation.
***, ** and * indicate significance respectively at the 1%, 5% and 10% levels.
Standard errors are in parantheses.

Table 10
Subsample of Islamic Banks from GCC with control group of Western banks.

Dependent variable: LC				
	Islamic Banks	*Western Banks*	*Islamic Banks*	*Western Banks*
	(1)	(2)	(3)	(4)
Bank individual variables				
Cap	-0.712***	-0.446	-0.749***	-0.566
	(0.115)	(0.414)	(0.096)	(0.518)
Size	4.690***	-13.587***	9.398***	-15.498***
	(1.601)	(3.357)	(1.437)	(3.435)
IBP	-0.004***	-0.014	-0.002***	-0.017*
	(0.001)	(0.009)	(0.001)	(0.009)
LLR	-0.102	-0.050		
	(0.229)	(0.262)		
LLP			0.935***	-0.315
			(0.039)	(0.400)
Macro variables				
Economic freedom	0.999***	-2.544***	1.574***	-2.649***
	(0.397)	(0.365)	(0.517)	(0.311)
Per capita GDP	-0.001***	0.000	-0.001***	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
GDP growth	0.761***	0.635***	0.926***	0.656***
	(0.182)	(0.144)	(0.372)	(0.148)
Inflation	-0.252	-1.068***	0.208	-1.356***
	(0.161)	(0.259)	(0.289)	(0.265)
No of Obs.	70	177	75	178
Sargan Test	0.827	0.219	0.485	0.348

Notes: This table reports results from dynamic panel GMM estimation with predetermined and lagged endogenous variables in first differences (see Arellano and Bond 1991, Blundell and Bond 1998) for our empirical model described in Section 3.2. We regard here Islamic and Western banks based in GCC for the alternative loan portfolio risk variables (LLR, LLP). For each regression, we test the null hypothesis that the over-identifying restrictions are valid (Sargan test). The *p*-values of the Sargan tests are reported in the table.
Variable definitions: LC = liquidity creation gap in percent; Cap = equity to total assets; Size = natural logarithm of total assets in USD; IBP = interbank ratio; LLR = loan loss reserves to gross loans; LLP = loan loss provisions to gross loans; Economic freedom = Heritage Foundation/Wall Street Journal economic freedom index; Per capita GDP = gross domestic product per capital; GDP growth = annual percentage change of gross domestic product; inflation = annual percentage change of inflation.
***, ** and * indicate significance respectively at the 1%, 5% and 10% levels.
Standard errors are in parantheses.

Table 11
Subsample of Islamic banks from non-GCC with control group of Western banks.

Dependent variable: LC				
	Islamic Banks	*Western Banks*	*Islamic Banks*	*Western Banks*
	(1)	(2)	(3)	(4)
Bank individual variables				
Cap	-0.842***	-0.042	-1.270***	-0.425
	(0.312)	(0.896)	(0.286)	(0.702)
Size	7.422***	-2.503	4.944***	1.820
	(1.223)	(2.536)	(1.575)	(2.598)
IBP	0.001***	0.004	0.001***	0.005
	(0.000)	(0.004)	(0.000)	(0.007)
LLR	-0.209***	-0.407**		
	(0.034)	(0.194)		
LLP			-0.826	-0.905***
			(0.822)	(0.371)
Macro variables				
Economic freedom	-2.871***	-0.820	-1.863***	-0.919
	(0.614)	(0.613)	(0.360)	(1.351)
Per capita GDP	0.000	0.001	0.000	0.000
	(0.002)	(0.002)	(0.001)	(0.002)
GDP growth	0.937***	0.010	0.824***	0.077
	(0.322)	(0.231)	(0.285)	(0.308)
Inflation	0.928***	-0.103	0.053	-0.209
	(0.159)	(0.298)	(0.145)	(0.754)
No of Obs.	76	85	70	98
Sargan Test	0.444	0.294	0.729	0.409

Notes: This table reports results from dynamic panel GMM estimation with predetermined and lagged endogenous variables in first differences (see Arellano and Bond 1991, Blundell and Bond 1998) for our empirical model described in Section 3.2. We regard here Islamic and Western banks based in non-GCC for the alternative loan portfolio risk variables (LLR, LLP). For each regression, we test the null hypothesis that the over-identifying restrictions are valid (Sargan test). The *p*-values of the Sargan tests are reported in the table.
Variable definitions: LC = liquidity creation gap in percent; Cap = equity to total assets; Size = natural logarithm of total assets in USD; IBP = interbank ratio; LLR = loan loss reserves to gross loans; LLP = loan loss provisions to gross loans; Economic freedom = Heritage Foundation/Wall Street Journal economic freedom index; Per capita GDP = gross domestic product per capital; GDP growth = annual percentage change of gross domestic product; inflation = annual percentage change of inflation.
***, ** and * indicate significance respectively at the 1%, 5% and 10% levels.
Standard errors are in parantheses.

Table 12
Subsample of large Islamic banks with control group of Western banks.

Dependent variable: LC				
	Islamic Banks	*Western Banks*	*Islamic Banks*	*Western Banks*
	(1)	(2)	(3)	(4)
Bank individual variables				
Cap	-1.112***	-1.020	-0.964***	0.103
	(0.153)	(1.487)	(0.171)	(1.541)
Size	7.685***	-2.018	6.038***	-2.980
	(2.435)	(12.980)	(2.393)	(6.627)
IBP	-0.006***	-0.008	-0.003***	-0.015
	(0.001)	(0.019)	(0.001)	(0.028)
LLR	-3.705***	0.917		
	(0.847)	(1.329)		
LLP			-0.684	1.272
			(0.870)	(5.283)
Macro variables				
Economic freedom	1.305***	-1.185	0.040	-1.036**
	(0.213)	(0.951)	(0.225)	(0.497)
Per capita GDP	-0.001***	0.000	-0.001**	0.001
	(0.000)	(0.000)	(0.000)	(0.000)
GDP growth	0.940***	0.651	0.903***	0.512
	(0.247)	(0.596)	(0.272)	(0.434)
Inflation	-0.442	-1.549	-0.369	-1.270**
	(0.336)	(1.125)	(0.388)	(0.670)
No of Obs.	93	174	88	174
Sargan Test	0.654	0.665	0.510	0.638

Notes: This table reports results from dynamic panel GMM estimation with predetermined and lagged endogenous variables in first differences (see Arellano and Bond 1991, Blundell and Bond 1998) for our empirical model described in Section 3.2. We regard here large Islamic and Western banks for the alternative loan portfolio risk variables (LLR, LLP). For each regression, we test the null hypothesis that the over-identifying restrictions are valid (Sargan test). The *p*-values of the Sargan tests are reported in the table.
Variable definitions: LC = liquidity creation gap in percent; Cap = equity to total assets; Size = natural logarithm of total assets in USD; IBP = interbank ratio; LLR = loan loss reserves to gross loans; LLP = loan loss provisions to gross loans; Economic freedom = Heritage Foundation/Wall Street Journal economic freedom index; Per capita GDP = gross domestic product per capital; GDP growth = annual percentage change of gross domestic product; inflation = annual percentage change of inflation.
***, ** and * indicate significance respectively at the 1%, 5% and 10% levels.
Standard errors are in parantheses.

Table 13
Subsample of small Islamic banks with control group of Western banks.

Dependent variable: LC				
	Islamic Banks	*Western Banks*	*Islamic Banks*	*Western Banks*
	(1)	(2)	(3)	(4)
Bank individual variables				
Cap	-0.916***	-0.079	-1.329***	-0.845*
	(0.303)	(0.286)	(0.156)	(0.514)
Size	-8.064*	-4.138	-8.064***	-1.916
	(4.680)	(5.222)	(3.401)	(6.277)
IBP	0.000***	0.001	0.000***	-0.004
	(0.000)	(0.005)	(0.000)	(0.006)
LLR	-0.128	-0.020		
	(0.314)	(0.124)		
LLP			0.827***	-0.242
			(0.211)	(0.503)
Macro variables				
Economic freedom	-3.584	-1.619***	-5.387***	-0.638
	(2.235)	(0.466)	(1.180)	(1.322)
Per capita GDP	0.000	0.000	0.001	0.000
	(0.001)	(0.000)	(0.001)	(0.001)
GDP growth	-2.914***	0.360	0.036	0.491
	(0.621)	(0.264)	(0.906)	(0.452)
Inflation	1.637**	-0.383	-1.130**	0.040
	(0.686)	(0.575)	(0.542)	(0.616)
No of Obs.	53	88	57	102
Sargan Test	0.296	0.443	0.295	0.862

Notes: This table reports results from dynamic panel GMM estimation with predetermined and lagged endogenous variables in first differences (see Arellano and Bond 1991, Blundell and Bond 1998) for our empirical model described in Section 3.2. We regard here small Islamic and Western banks for the alternative loan portfolio risk variables (LLR, LLP). For each regression, we test the null hypothesis that the over-identifying restrictions are valid (Sargan test). The *p*-values of the Sargan tests are reported in the table.
Variable definitions: LC = liquidity creation gap in percent; Cap = equity to total assets; Size = natural logarithm of total assets in USD; IBP = interbank ratio; LLR = loan loss reserves to gross loans; LLP = loan loss provisions to gross loans; Economic freedom = Heritage Foundation/Wall Street Journal economic freedom index; Per capita GDP = gross domestic product per capital; GDP growth = annual percentage change of gross domestic product; inflation = annual percentage change of inflation.
***, ** and * indicate significance respectively at the 1%, 5% and 10% levels.
Standard errors are in parantheses.

Kapitel III

Alman, Mahir

Determinants of *Shari'ah*-typical Equity-Based Contracts at Islamic Banks

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Determinants of *Shari'ah*-typical Equity-Based Contracts at Islamic Banks

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Abstract

Islamic banks face restrictions due to the principles of the *Shari'ah,* which prohibits financial contracts and transactions based on interest, gambling, and speculation. This study examines the determinants of the share of equity-based contracts that are typical to and compliant with *Shari'ah* within the entire loan product portfolio on the asset side of an Islamic bank. Over the period from 2000 to 2009, we analyze the influence of bank market as well as individual bank factors on the share of these equity-based contracts. We include cross-country bank level data from Islamic countries in the Middle East and Northern Africa as well as in Southeast Asia. Our results reveal evidence that increasing the competition in the overall bank market as well as in the Islamic bank market leads to risk-shifting behavior with a higher share of *Shari'ah*-typical equity-based income contracts. We find also that risk-aversion towards these *Shari'ah*-typical equity-based contracts increases with stronger capitalization. A complementary role in the overall bank market with these forms of contracts is most achievable with a specialization strategy in terms of a small bank size, while there are crowding out effects between large Western and large Islamic banks.

Key Words: Islamic Banking, Competition, Product Portfolio, Risk-Taking

JEL classification: G21, G28, L11

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1 Introduction

Although profit and loss sharing is a main principle in contracts that are compliant with the *Shari'ah*, the product portfolio on the asset side of an Islamic bank is usually dominated by debt-based fixed-income contracts with a share of about 80%. While *Shari'ah*-typical equity-based contracts span forms of *Mudarabah* and (diminishing) *Musharakah*, debt-based contracts include mainly *Murabahah, Ijarah, Salam* and *Istisna*. Our study extends the explaining of this domination from the perspective of agency theory (see Jensen and Meckling 1976, Fama and Jensen 1983, Haque and Mirakhor 1987), as we empirically analyze the factors that influence the share of *Shari'ah*-typical equity-based contracts within the whole product portfolio and, thus, of risk-taking behavior in Islamic banks. To shed some light on the explanatory factors of *Shari'ah*-typical equity-based contracts, we examine particularly bank market explanatory variables as well as individual bank factors. On the level of the bank market, we study the influences of competition, in which we differentiate between the effects that bank market concentration in the entire market, Islamic market, and in the Western market have on loan portfolio risk-taking of Islamic banks. Therefore, we can make a contribution to answering the question regarding the degree to which the structure of a product portfolio in an Islamic bank is determined by external bank market factors that are beyond the scope of *Shari'ah*-compliant regulations. Thus, we consider the supply factors of the share of equity-based contracts on an Islamic bank's asset side. An important limitation of our study is to control how country-specific institutional traits influence the relative use of equity and debt by Islamic banks (see La Porta et al. 1998, 2000, Demirgüc-Kunt, et al. 2004). This is due to data availability because existing country-specific institutional indicators reflect the status of the Western financial system more than the Islamic

system. However, our country-focused robustness tests help to gain insights into the relevance of these country-specific determinants.

The guidelines of Islamic banking stem from the *Shari'ah*, the unique legislation for Muslims with the *Quran*, *Hadith (Sunna)*, *Ijma,* and *Qiyas* as its main sources. *Shari'ah*-compliant contracts prohibit interest, gambling, and speculation in terms of *Riba*, *Gharar* and *Maysir* and require profit and loss sharing (equity-based) backed by a real asset. The involvement of assets in sectors like defense or entertainment or in companies that do not fulfill additional capital structure criteria is also forbidden (for screening criteria, see Table 1 in the appendix, Quran: 2:275-2:280, Lewis and Algaoud 2001, Mirakhor and Iqbal 2007). There are regional specifications regarding the development of an Islamic financial system where it can exist alone, such as in Iran, Pakistan, and Sudan, or in parallel to a financial system in accordance to industrialized Western countries (referred to as Western in the following). The Islamic banking sector will need innovations on the product portfolio level accompanied by regulations on the institutional level to solve the restrictions in refinancing and subsequently to be able to compete with their Western counterparts. In particular, regulations have to focus especially on *Shari'ah*-typical equity-based contracts on an Islamic bank's asset side, concerning to their higher contribution to the systemic bank-risk than debt-based fixed-income contracts (see Sundararajan, 2007, Van Greuning and Iqbal 2007, Kayed 2012, Brunnermeier et al. 2010).

Previous studies that have examined the structure of the product portfolio in Islamic banks are based on theoretical or empirical analyses that are restricted to one country or that have only a descriptive character (see Kayed 2012, Khan 1995, Aggarwal and Yousef 2000, Visser 2009). We analyze the determinants of the individual bank share of *Shari'ah*-typical equity-based contracts within the entire product portfolio with a cross-country empirical analysis over the

period from 2000 to 2009. As the time period includes years of global financial crisis and non-crisis years, we expect robust empirical results. Thus, this study contributes to the literature by explaining the relationship between the product portfolio (risk) characteristics, the restrictions by the *Shari'ah*, and the effects of competition in the bank market. Our dataset comprises 60 Islamic banks based in the Middle East and Northern Africa as well as in Southeast Asia and covers on average approximately 75% of the total Islamic banking assets in the world as of 2009 (see The Banker and Maris Strategies). If our results are driven by any local bias, then Islamic and Western bank market explanatory factors, regarding the share of *Shari'ah*-typical equity-based contracts within the entire product portfolio, will be affected in the same way.

The empirical results provide significant evidence for our theoretical predictions. The share of *Shari'ah*-typical equity-based contracts is inversely related to bank market concentration. The effects of competition in the overall market and among Islamic banks are significantly different. The influence of the latter is even stronger and leads to increasing risk-shifting behavior in terms of increasing the share of *Shari'ah*-compliant equity-based instruments when the competition in an Islamic bank market is higher. Further, our results indicate that risk-aversion towards *Shari'ah*-typical equity-based contracts increases with additional capitalization. Finally, we find evidence that the use of these equity-based contracts needs a specialization strategy to efficiently minimize agency-costs and to play a complementary role in the bank market, while there are crowding out effects between large Western and large Islamic banks.

The remainder of the paper is organized as follows: Section 2 presents the review of the related literature on the restricted use of *Shari'ah*-typical equity-based contracts within the product portfolio of an Islamic bank's assets and explains how this study extends the existing

work. In Section 3, we derive our hypotheses and describe our dataset and methodology. The discussion of our results is in Section 4 and Section 5 concludes our paper.

2 Related Literature

There are several reasons for the discrepancies found in the product portfolios of Islamic banks regarding *Shari'ah*-typical equity-based contracts. On the level of the financial system, most Islamic banks intermediate in countries with a relatively weak legal, institutional, and financial environment, leading to high degrees of asymmetric information, liquidity constraints, and high capital costs that also result from market segmentation (see Aggarwal and Yousef 2000, Chong and Liu 2007, Akacem 2008, Visser 2009, Al-Hassan et al. 2010, Hearn et al. 2010). Therefore, our study is also related to the literature on costly state verification (see Gale and Hellwig 1985), suggesting that debt-based contracts dominate the equity-based counterparts when the costs of verifying and enforcing state-contingent returns are high.

On the level of the bank market, which is the focus of this study, the rare supply of equity-based contracts is a form of market adjustment that results from the competition with Western banks. When choosing Islamic financial products, Muslims not only decide according to the *Shari'ah*, but also based on risk and return criteria that are comparable to the equivalent financial instruments in Western banks (see Dar and Presley 2000, Gait and Worthington 2008, Cevik and Charap 2011). Therefore, we conclude that the risk-taking behavior in the product portfolio might be determined by the following three levels of competition: 1) competition in the overall market, 2) competition within Islamic banks and 3) competition within Western banks (see also Imam and Kpodar 2010). The relationship between concentration, banking stability, and regulation is not clear in the theoretical or empirical literature (see Leibenstein 1966, Demsetz 1973, Allen and

Gale 2004, Boyd and De Nicol´o 2005, Foos et al. 2009, Martinez-Miera and Repullo 2010, Brunnermeier at al. 2010). Whether increasing bank market competition is in principle suggested with a trade-off to bank stability is an unsolved question in the literature. According to this trade-off, the incentives associated with excessive risk-taking behavior in a bank are low in case of high "charter values" that is defined as the present value of expected future rents (see Keeley 1990, Stiglitz and Weiss 1981, Bhattacharya et al. 1998). However, increasing bank market competition can lead to decreasing "charter values," which, in turn cause an increase in risk-shifting behavior and thus bank market instability. Clearly, every restriction in competition is accompanied by efficiency losses.

Then, on the institutional bank level, restrictions in refinancing – due to the lack of an interbank market, a lender of last resort, or an asset market – make Islamic banks very dependent on deposit funding. This hinders them from using the equity-based contracts that are typical to the *Shari'ah* because there would be an imbalance in the maturity of assets and liabilities. The deposit funding character of Islamic banks has two main forms: current accounts (*Wadiah*, *Qard Hassan*) and investment accounts ((un-)restricted *Mudarabah*) (see Khan and Mirakhor 1987). The latter can lead to controversial incentives for investment account holders as well as for an Islamic bank in using *Shari'ah*-typical equity-based contracts and, as a result, in their risk-taking behavior. From the perspective of investment account holders, there can be either decreasing incentives for monitoring the risks within the product portfolio regarding moral hazards and free-rider problems (see Sundararajan and Errico 2002) or they can have a disciplining function through effectively monitoring the equity-based product portfolio. From the perspective of an Islamic bank, the incentives for taking excessive risks will be limited due to the increasing amount of liability capital (see Stiglitz and Weiss 1981). On the individual bank level, there are different strands of literature about optimal organizational forms. Traditional banking theory

predicts, based on a delegated monitoring argument, infinite diversification benefits and therefore risk reduction on liability or on asset side (see Diamond 1984, Boyd and Prescott 1986), which is supported by few studies (see Kashyap et al. 2002, Gatev et al. 2005). Another strand of literature finds contrary results in such that there are no diversification benefits and even diseconomies with increasing risk, so that specialization outweighs the benefits of risk-sharing (see Hellwig 1998, DeYoung and Roland 2001, Stiroh 2004, Acharya et al. 2006). Liquidity risk occurring on the liability or on the asset side has an exceptional position at Islamic banks. This is why it is securitized with higher equity than Western banks to avoid bank runs (see Diamond and Dybvig 1983).

Finally, on the product portfolio level, the contractual restrictions of the *Shari'ah* cause high agency problems, such as asymmetric information and opportunistic behavior, which require better mechanisms of screening, monitoring, and managing, leading to higher agency costs compared to interest-based contracts. This is especially true for a *Mudarabah* contract, in which a bank as the only financier has no management and control rights. In contrast, in a *Musharakah* contract, a bank has these rights according to the investment ratio, so that in dependence of individual bank capacities agency risks can be reduced (see Sundararajan 2007, Archer and Karim 2007, El-Gamal 2011). Thus, the preference of Islamic banks is rational and optimal even more than the alternative of equity financing in a dual financial system with possible adverse selection between the two (see Van Greuning and Iqbal 2007, Akacem 2008, Visser 2009).

This paper is also related to the synergies between liquidity transformation and risk, which can be influenced on the macroeconomic level by the development of financial sector institutions and refinancing sources (see Cole et al. 2008) and on the individual bank level by capital structure and size (see Boyd and Runkle 1993, Diamond and Rajan 2000, Koziol and Lawrenz

2009) as well as the diversification and structure of their product portfolios (see Diamond 1996, Acharya et al. 2006, Behr et al. 2007, Lepetit et al. 2008).

Our study further explores the existing studies in several important ways. First, we empirically study the determinants of the share of *Shari'ah*-typical equity-based contracts (*Mudarabah* and (diminishing) *Musharakah*) within the whole product portfolio on the asset side of Islamic banks which operate under different financial system, bank market, and product portfolio conditions. According to that, we shed light particularly on the relationship between the product portfolio (risk) characteristics and bank market as well as individual bank factors. In this matter, our investigations also contribute to determining the degree to which Islamic banks play a complementary or substitutive role towards Western banks. Second, on the basis of a regression analysis, we go beyond the theoretical and descriptive studies that have been done before. Within this framework, we have the possibility to analyze banks within the environment of a developing Islamic financial system, wherein banks are mainly deposit-financed because of the restricted refinancing sources and practice a conservative strategy in terms of their leverage position and their product portfolio.

3 Empirical Framework

3.1 Hypotheses Development

The first two Hypotheses are derived from the argument regarding the negative relationship between a bank's "charter values" and its risk-taking behavior in the product portfolio. Under the assumption that higher bank market concentration is associated with lower bank market competition, increasing competition leads to falling "charter values" and subsequently to risk-shifting behavior (see Keeley 1990, Stiglitz and Weiss 1981, Bhattacharya et

al. 1998). We expect that this trade-off is especially true for Islamic banks because the scope of financial instruments used for investments and financings underlie the criteria of the *Shari'ah* and the innovation process within these criteria has still been at the beginning. Thus, the debt-based product portfolio should be relatively similar among Islamic banks but also compared to Western banks. The possibilities for setting themselves apart from their Islamic as well as from their Western competitors, thereby covering an intermediation niche, lie in establishing a higher share of *Shari'ah*-compliant equity-based instruments (*Mudarabah* and (diminishing) *Musharakah*) within the entire product portfolio. Thus, in both cases Islamic banks can play a complementary role by increasing this share of *Shari'ah*-compliant equity-based instruments, which is more required in case of increasing competition within Islamic banks. Therefore, we analyze the following two hypotheses:

Hypothesis 1: Increasing overall bank market competition leads to additional loan portfolio risk-taking in terms of a higher share of *Shari'ah*-compliant equity-based contracts at Islamic banks.

Hypothesis 2: Compared to overall bank market competition, increasing Islamic bank market competition leads to stronger loan portfolio risk-taking in terms of a higher share of *Shari'ah*-compliant equity-based contracts at Islamic banks.

In the following and on the individual bank level, our next hypothesis is developed from the argument that higher equity increases the amount of liability capital, leading to an Islamic bank's preference for lower loan portfolio risk-taking such that the share of *Shari'ah*-compliant equity-based contracts falls (see Stiglitz and Weiss 1981, Diamond and Rajan 2000, Koziol and Lawrenz 2009). This is in contrast to the "risk-absorption" hypothesis (see e.g. Bhattacharya and Thakor 1993, Repullo 2004, Von Thadden 2004), as the capitalization of Islamic banks is the decisive capital buffer against asset-side defaults due to the reason of restricted refinancing

sources. This should be even more evident in the absence of deposit insurance, leading to incentives for increasing capitalization and decreasing bank-risk-taking behavior (see Merton 1977). Based on this argumentation, we state the following hypothesis:

Hypothesis 3: The capitalization of an Islamic bank is negatively related to the share of *Shari'ah*-compliant equity-based contracts within the whole loan portfolio.

Our further hypotheses contradict the delegated monitoring argument. Concerning to the monitoring intensive *Shari'ah*-compliant equity-based contracts, resulting especially from the limited instruments to minimize agency costs, we assume that specialization dominates the benefits of diversification (see Hellwig 1998, DeYoung and Roland 2001, Stiroh 2004, Acharya et al. 2006). While in a *Musharakah* contract an Islamic bank has management rights according to its investment ratio, it has no management rights in a *Mudarabah* contract and is fully liable as the sole investor. As such, financial contracts especially in the form of *Mudarabah* require a high effort in screening before the investment and at least intensive monitoring efforts after the investment (see Visser 2009, Sundararajan and Errico 2002). In parallel to Western specialized intermediaries, such as investment banks or private equity and venture capital providers, we expect the need for specialization of Islamic banks when focusing on *Shari'ah*-compliant equity-based instruments. If this relationship holds for small Islamic banks, then large Islamic banks should play a more substitutive than complementary role in the banking system because of the similarities in the loan portfolio risk structure compared with Western banks, which effectively leads in such to crowding out effects of each other. Thus, we establish the fourth hypothesis:

Hypothesis 4: Large Islamic banks are less likely to use *Shari'ah*-compliant equity-based contracts in their loan portfolio than small Islamic banks.

Finally, Hypothesis 5 proceeds from our assumption that increasing illiquidity lowers the amount of risk shield on the asset side of an Islamic bank, leading to increasing demand for restricted refinancing sources and consequently to a decreasing share of *Shari'ah*-compliant equity-based contracts (see Diamond and Dybvig 1983, Diamond 1996, Acharya et al. 2006, Lepetit et al. 2008). So, we examine the following hypothesis:

Hypothesis 5: The more an Islamic bank is affected by illiquidity, the higher the probability that it will decrease the share of *Shari'ah*-compliant equity-based contracts within the entire loan portfolio.

3.2 Dataset

Our empirical analysis is based on a sample of an unbalanced panel of annual and unconsolidated report data of Islamic banks from 2000 to 2009 obtained from Bankscope (Bureau van Djik Electronic Publishing) and from the Islamic Banks and Financial Institutions Information System (IBIS). The choice of this time period has the advantage that it covers years of cyclical downturn and upturn in world economics. Macro level data are derived from the World Economic Outlook Databases of the International Monetary Fund and from Heritage Foundation/Wall Street Journal. We include only Islamic banks from countries with a dual financial system in which the Islamic and the Western financial system exist in parallel. This data selection allows us to consider the influence of the Western bank market competition on the share of *Shari'ah*-typical equity-based contracts within the whole product portfolio on an Islamic bank's asset side. Another reason is that Islamic banks in countries with purely Islamic financial systems operate under very different institutional, legal, and market conditions, so it is not possible to compare them to their counterparts from dual financial systems. Furthermore, we limit our analysis to banks which are full-fledged Islamic, thus Western (interest-based) banks with

separate Islamic business departments ("Islamic windows") are excluded. A further criterion for data selection is that the banks are based in countries where Muslims form the majority of the population. Finally, for comparability under similar development conditions, we restrict our study to Islamic banks from high-income to lower-middle-income economies according to the classification of the World Bank.

Please insert Table 2 about here.

As Table 2 illustrates, the whole sample that fulfills these criteria consists of 60 Banks from 13 countries and contains 320 reports over the entire period. The whole sample covers 37 banks from the Gulf Cooperation Council (GCC), whose members are Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE, while banks from non-GCC countries are from Egypt, Indonesia, Jordan, Lebanon, Malaysia, Syria, Turkey, and Yemen. We assume that if our results underlie a local bias, then Islamic and Western bank market proxies are affected in the same way. We use the median bank size in total assets (ca. 1,775 million USD) as the cutoff criterion to distinguish between large and small banks to achieve comparable weightings between the two subsamples.

From each report, we collect data on *Shari'ah*-typical profit and loss sharing contracts (*Mudarabah* and (Diminishing) *Musharakah*) to calculate the ratio of these assets in the whole of the product portfolio (PLSR) as well as data on bank market concentration (Conc(3), Conc(5), HHI, No), capitalization (Equ), size (TA), and liquidity (Liq) of Islamic banks. As provided in Table 3, there is a significantly higher concentration among Islamic banks than banks in total or Western banks. This picture is also supported by the proxy of the number of banks. Assuming that there is a trade-off between bank market concentration and competition, the Islamic bank market indicates a developing banking system (see e.g. Lucchetta 2008).

Please insert Table 3 about here.

3.3 Methodology

To account for unobserved bank-level heterogeneity, our empirical model for analyzing the relationship between PLSR and bank market, individual bank as well as macroeconomic factors is based on the following first-differenced equation (see Arellano and Bond 1991, Wooldridge 2009):

$$\Delta PLSR_{i,j,t} = \delta_0 + \beta_1 \Delta Conc_{i,j,t} + \beta_2 \Delta Equ_{i,j,t} + \beta_3 \Delta \ln(TA_{i,j,t}) + \beta_4 \Delta Liq_{i,j,t} + \beta_5 \Delta Infl_{i,j,t} + \beta_6 \Delta GDPCAP_{i,j,t} + \beta_7 \Delta EFI_{i,j,t} + \varepsilon_{i,j,t},$$

with $PLSR_{i,j,t}$ as the profit and loss sharing ratio of bank *i* in country *j* at time *t* that is also a proxy for a bank's risk-taking behavior. This ratio measures the share of *Shari'ah*-typical equity-based contracts (*Mudarabah* and (Diminishing) *Musharakah*) within the whole product portfolio on the asset side of an Islamic bank. To control for bank market characteristics, we use the following four alternative concentration measures $Conc_{i,j,t}$ based on total assets for each country and year using bank-level data from Bankscope and from IBIS: 1) The fraction of assets held by the three (Conc(3)) largest banks and 2) the fraction of assets held by the five (Conc(5)) largest banks, 3) the Herfindahl-Hirshman Index (HHI) that is defined as the sum of squared market shares of all banks as well as 4) the number of banks (see Martinez-Miera and Repullo 2010, Demirgüc-Kunt et al. 2004, Dietsch and Lozano-Vivas 2000). We also regard the HHI alternatives in terms of loans and in terms of deposits, leading to equivalent results compared to the HHI based on total assets, which is why we exclude them from our discussions for the sake of brevity. However, there are some papers that conclude that these concentration measures should be treated carefully due to the limited ability to proxy the bank market competition in a country (see Berger et al. 2003, Claessens and Laeven 2004). At the individual bank level, we include the

following explanatory variables: $Equ_{i,j,t}$ as the capitalization of a bank as indicated by equity to total assets and $\ln(TA_{i,j,t})$ as the size in natural logarithm of total assets to account for non-linear relations. Our liquidity proxy on the level of the product portfolio is $Liq_{i,j,t}$ as the ratio of liquid assets to total assets (see Aspachs et al. 2004). This liquidity measure approximates the split between liquid and illiquid assets and is associated with the uncertainty by the asset side that could be shielded with liquid assets. At the macroeconomic level, we consider the following three macroeconomic control variables to proxy the institutional development status of a country's financial system: 1) inflation $Infl_{i,j,t}$, 2) per capital GDP $GDPCAP_{i,j,t}$, and 3) the index of economic freedom $EFI_{i,j,t}$ as indicated by the Heritage Foundation/Wall Street Journal. The index covers ten benchmarks of economic and institutional development such as business freedom, property rights, and fiscal freedom. Finally, we include $\varepsilon_{i,j,t}$ as the error term.

The econometric method for the panel regression analysis of the first-differenced equation is panel ordinary least squares (OLS) with the method of White period that is robust to arbitrary serial correlation and time-varying variances in the disturbances (see Arellano 1987, White 1980). To check for further robustness, the estimations are run with alternative concentration measures for each country and year, for all of the banks, for Islamic banks, and for Western banks in order to separate the effects of competition on PLSR. Further controls for robustness include the estimations for different subsamples with a focus on country (GCC vs. non-GCC), bank size (small vs. large) as well as time period (crisis vs. non-crisis years). The first pair of subsamples is constructed due to macroeconomic homogeneity and regional financial sector integration as well as due to higher competition rather than concentration in GCC than in non-GCC countries (see e.g. Al-Hassan et al. 2010, Espinoza et al. 2010). To check for further robustness, we distinguish between large and small banks based on the median size in total assets (ca. 1,775 million USD) as

the cutoff criterion in order to achieve comparable weightings between the two subsamples. In this way, we can also investigate specialization and diversification benefits related to *Shari'ah*-typical equity-based contracts. Finally, to further control the robustness of our results, we constructed subsamples covering crisis and non-crisis years. While the latter covers the time period from 2000 to 2005, the former covers the period from 2006 to 2009. As Tables 4 and 5 report, the difference tests by applying the Mann-Whitney U-Test strongly support the robustness checks with subsample compositions according to a focus on country, bank size, and time period.

Please insert Table 4 and 5 about here.

Based on our hypotheses, we raised two questions: 1) Which characteristics are attributable to Islamic banks and 2) Which result from the economic and regulatory conditions under a dual financial system is taking place in a given country? Separating the two effects is very difficult due to interdependencies and the influences of individual banks, but our methodological approach in this study is designed to elicit just that kind of information.

4 Empirical Results

4.1 Entire Sample of Islamic Banks

In our broad sample, we find support for Hypothesis 1 on the bank market level, while Hypothesis 2 has weak evidence according to our regression specifications. The coefficients for the alternative concentration variables have the expected signs in the influence of variables related to the entire bank market and, in three out of four cases, they are even significant at least on the 5% level. Thus, if higher overall bank market concentration is associated with lower overall bank market competition, then the PLSR of Islamic banks and competition in the entire market are positively dependent. For example, a 10% increase of concentration causes a drop of

PLSR between 1.5% and 3.6%. When considering the explanatory factors of concentration for the Islamic and for the Western bank market separately, there is significant evidence for differentiating between these effects. We see in two out of four Islamic bank market concentration variables a significant influence at the 5% and 10% level, respectively. Further, assuming that a competitive overall bank market indicates a developed banking system (see e.g. Lucchetta 2008), then lower overall bank market concentration is more accommodative to the PLSR of Islamic banks. Thus, with a higher share of PLSR, Islamic banks can play a complementary rather than a substitutive role towards the Western bank market. With increasing PLSR, they do not directly compete with their Western counterparts, avoiding in consequence crowding out effects. On the individual bank level, our third Hypothesis finds weak evidence in the regression specifications. Consistent with the theoretical notion, additional equity capital is associated with higher liability as well as the preference for less risky projects so that the PLSR decreases. We can strongly confirm in all regression specifications Hypothesis 4 at the significance level of 1%. Regarding the coefficient values, bank size decisively determines the share of *Shari'ah*-compliant equity-based contracts in the product portfolio of Islamic banks. Assuming that a small bank size is related to a specialization strategy and equivalently a large bank size is referred to a diversification strategy, there is significant evidence that the former dominates the latter in increasing the PLSR. Although large Islamic banks profit especially from widespread deposit-gathering networks and so from liquidity, specialization outweighs the benefits of diversification in the risk management of *Shari'ah*-typical equity-based contracts. Finally, on the individual bank level, there is no support for the fifth Hypothesis, indicating that the liquidity status of Islamic banks plays a minor role in explaining the PLSR. Our empirical results are also consistent with the findings of Imam and Kpodar (2010) in the sense that macro variables covering the economic and institutional development status have no significant

influence on PLSR. This is surprising because according to the theoretical literature, we should expect a positive relationship between macroeconomic development and the PLSR. The insignificant macroeconomic variables can also be the result of their weakness that they cannot cover the development status specific to the Islamic financial system. Another reason can be seen in the sample choice, which consists of banks based in GCC countries in cases of more than 60%. In this manner, the macroeconomic homogeneity among members of GCC (see Espinoza et al. 2010) dominates the sample such that the proxies of economic and institutional development are absorbed. Table 6 contains the summarized results.

Please insert Table 6 about here.

4.2 Checking for Robustness

In this section, we check the robustness of our regression results from the entire sample by constructing subsamples with a focus on country, bank size, and time period. We start by examining the subsamples with focus on specific countries, in which we differentiate between Islamic banks from GCC and from non-GCC. This differentiation is primarily chosen due to the stronger competition in the Islamic bank market in GCC than in non-GCC, but also due to relatively high macroeconomic homogeneity in GCC and their comparable development of the Islamic finance market. Moreover, we can cover the possible effects of cross-border bank market competition among members of GCC that results from their increasing economic cooperation (see e.g. Al-Hassan et al. 2010, Espinoza et al. 2010).

On the bank market level among GCC-based banks, there is statistically weak support for Hypothesis 1, while we find strong significant evidence for Hypothesis 2. For this subgroup, only HHI in the regression specification with overall bank market variables is very significantly negative, which is not confirmed by the alternative concentration proxies. On the significance

level of at least 5%, the Islamic bank market concentration negatively influences the PLSR. The reverse is true for the subsample of non-GCC-based banks, wherein the concentration of overall bank market negatively determines the PLSR. As such, we find again robust empirical support for our first Hypothesis, while there is no evidence for the second Hypothesis. Both subsamples share no significance in the regression specification of Western bank market concentration variables. The differences in the bank market influences can be explained by the higher development of the Islamic financial system in GCC in comparison to non-GCC. In countries outside of the GCC, except for Malaysia, a developed Western banking system is typically not accompanied by a developed Islamic banking system. Thus, we can conclude on the bank market level that the PLSR is positively influenced by, first, the development status of the Islamic bank market in a country and second, by the institutional and economic development of the Western bank market. In both cases, equity-based contracts that conform to the *Shari'ah* play a decisive role for Islamic banks to achieve a competitive advantage over their Western counterparts. Then, we can indicate that in GCC, the effect of Islamic bank market concentration rather competition on PLSR is even higher than the effect from overall bank market in non-GCC. Thus, according to Hypothesis 2, the competition pressure for Islamic banks to shift their risks is stronger when the concentration in the Islamic bank market decreases than in the entire bank market. On the individual bank level among the non-GCC-based banks, our estimates give strong evidence for a negative dependence of capitalization with the PLSR, supporting our third Hypothesis. This evidence is lacking at all for Islamic banks from GCC. Capitalization matters significantly more for Islamic banks from non-GCC than for their counterparts from GCC because, apart from Malaysia, the refinancing possibilities in compliance with the *Shari'ah* are restricted. Thus, every decrease in capitalization lowers the amount of liability capital required for the risky financial contracts in terms of *Mudarabah* or *Musharakah*. The significance for the bank size differs very strongly in the

subsamples, such that for Islamic banks based in non-GCC the size proxy is strongly negatively significant (1%) for all regression specifications. This shows clear evidence for Hypothesis 4. In contrast, GCC-based banks have no or only weak evidence (10%) in the alternative regressions in which bank size matters to the PLSR. At least, the coefficients have the expected negative signs. The explanation for the differences in the influence of bank size is that specialization benefits are significantly higher in countries where Western banks dominate, which is more the case for non-GCC than for GCC countries. In financial sectors with a dominance of Western banks, the Islamic counterparts can fulfill a complementary function by specializing in equity-based contracts in compliance with the *Shari'ah* to gain a competitive advantage in the bank market. In GCC countries, Islamic banks can also fulfill a complementary market position. However, the regression results using the Islamic bank market concentration variables imply that higher specialization is required to achieve competition benefits through increasing the PLSR. This is because of higher competition among Islamic banks based in GCC and also concerning to the increasing competition there through the foundations of Islamic business departments by Western banks. As in the entire sample, there are no significant results for the liquidity proxy in the two subsamples, but they have the expected positive signs according to Hypothesis 5. In non-GCC countries, classified especially as lower middle-income economies, banks are usually confronted with stronger macroeconomic risk and volatility and a lack of legal and regulatory environment, often leading to difficulties in enforcing contracts and subsequently to liquidity hoarding by banks (see e.g. Aspachs et al. 2004, Acharya et al. 2008, Bansal et al. 2010). This behavior is conveyed when you compare the liquidity coefficient values of the non-GCC subsample with their counterparts of the GCC subsample. Finally, on the macroeconomic level, our results show among banks from GCC and in complete contrast to the subsample of non-GCC-based banks, a positive influence of the inflation on the PLSR with a significant level from 10% to 5%. This

result indicates that in periods with positive inflation, equity-based contracts are more attractive than fixed-income instruments. An explanation of why it is true for GCC-based banks could be the positive relationship between petro dollars, market liquidity, inflation, and risk-shifting behavior. Tables 7 and 8 contain summarized results for the subsamples with a focus on the specific countries.

Please insert Tables 7 and 8 about here.

To check for further robustness, we continue with the subsamples in which we distinguish between large and small banks based on the median size in total assets (ca. 1,775 million USD) as the cutoff criterion. In this way, we can also investigate specialization and diversification benefits related to *Shari'ah*-typical equity-based contracts. Regarding first the bank market variables, there is significant evidence for Hypothesis 1 in large Islamic banks both in terms of total and Islamic specifications of concentration. Large Islamic banks increase their PLSR if there is higher competition either in the overall bank market or in the Islamic bank market. This is not true for the subsample of small Islamic banks in which we find only weak evidence for our first Hypothesis. Thus, neither of the subsamples provides proof for our second Hypothesis, which means that there is no empirical evidence that Islamic bank market indicators dominate the overall bank market variables in explaining the PLSR. This result is not surprising when considering the lower PLSR of large Islamic banks compared to the PLSR of their small counterparts, which leads to a similar as well as substitutive product portfolio structure of the former towards Western banks. Thus, the share of *Shari'ah*-compliant equity-based contracts in the loan portfolio of large Islamic banks is more affected by the competition in the entire market than for small Islamic banks. At the individual bank level, we find no significant evidence that, according to the third Hypothesis, risk-aversion in the loan portfolio increases with higher

capitalization. The most striking difference of the subsample with small Islamic banks in comparison to their large counterparts is the consistent significance of bank size in all regression specifications, which confirms our fourth Hypothesis. The PLSR of small Islamic banks is relatively sensitive to changes in their size, implying a convex relationship between specialization in terms of decreasing total assets and the ability to increase the PLSR in the product portfolio. Our liquidity proxy influences the PLSR very significantly on the 5% level in all regression specifications for large banks. This is in contrast to the results for the subsample of small banks in which the liquidity indicator is not significant at all and has the opposite sign. Thus, our fifth Hypothesis is only true for large Islamic banks, meaning that in contrast to their small counterparts, the PLSR depends strongly on the balance in the maturity of assets and liabilities. Thus, increasing liquidity exposes large Islamic banks to risk-shifting behavior (see Allen and Gale 2004). Summarized results for the subsamples with a focus on size are provided in Tables 9 and 10.

Please insert Tables 9 and 10 about here.

Our final check for robustness is achieved by examining sub-periods in order to control for possible effects from years of global financial crisis and non-crisis years. In contrast to the subsample with crisis years (2006-2009), we find strong significant evidence for our first, third, and fourth Hypotheses for the subsample with non-crisis years (2000-2005). According to this, the PLSR increases in overall bank market competition and it has an inverse relationship to capitalization and to bank size. In the subsample, which covers crisis years, there is no or only weak evidence for our hypotheses, but the bank market and explanation variables of individual banks do have the expected signs. The weak empirical support might be the result of too few observations and should not be associated with the effects of the global financial crisis. However,

the comparison between the subsample results of years of financial crisis and non-crisis years should not deliver new insights, as several empirical studies confirm the financial stability of Islamic banks, which result particularly from higher capitalization and higher liquidity reserves (see Beck et al. 2010, Cihak and Hesse 2010, Al-Hassan et al. 2010, Hasan and Dridi 2010). Tables 11 and 12 report the summarized results.

Please insert Tables 11 and 12 about here.

In sum, our empirical results of the entire sample and of the subsamples reveal evidence for Hypotheses 1, 2 and 4. We find only weak evidence for Hypotheses 3 and 5. Hence, we can conclude that the PLSR is significantly determined by overall as well as Islamic bank market competition. Thus, increasing overall and Islamic bank market competition leads to decreasing "charter values," which causes an increase in risk-shifting behavior with a higher PLSR. These results show that a developed banking system accommodates Islamic banking and thus, with increasing competition, a higher PLSR. We conclude from the comparison between Islamic banks based within and outside of the GCC that capitalization negatively determines the PLSR in the least developed Islamic banking markets, reflecting the very restricted refinancing sources related to raising costs of capital, which is also due to market segmentation through compliance to the *Shari'ah* (see also Berger and Bouwman 2010, Aggarwal and Yousef 2000, Hearn et al. 2010). In addition, we find that bank size is a dominant explanatory factor of the PLSR of Islamic banks. This implies that *Shari'ah*-compliant equity-based contracts require a specialization strategy to minimize agency costs that result particularly from the risks of moral hazard and hold-up during the investment phase. By differentiating between GCC-based and non-GCC-based Islamic banks, we find that the institutional development of a banking system strongly influences the need for specialization to increase the PLSR and the different effects that bank market competition has on

PLSR. Based on our distinction between subsamples according to bank size, our study implies that the risk-shifting behavior of large Islamic banks in terms of PLSR are more subject to the effects of competition in the overall bank market than in the Islamic bank market because of the comparable product portfolio structures with Western banks. Finally, surprisingly the liquidity indicator shows that, unlike in small Islamic banks, the restricted refinancing sources significantly affect their larger counterparts in increasing the PLSR.

5 Conclusions

The business of Islamic banks is restricted under the guidelines of the *Shari'ah*, the unique and global legislation for Muslims, in which interest, gambling, and speculation are prohibited and financial contracts have to be based on real assets and on profit and loss sharing. Furthermore, investments underlie negative and financial screens, which are comparable to a broader case of socially responsible investments (SRI). In our study, we empirically analyze the influence factors of the share of *Shari'ah*-typical equity-based contracts (PLSR) within the whole product portfolio on the asset side of an Islamic bank. Here, we examine particularly alternative bank market and also the influence of individual bank factors to explain the discrepancy of Islamic banks regarding *Shari'ah*-typical equity-based contracts. For our cross-country panel analysis, we use a sample of Islamic banks based in the Middle East and Northern Africa as well as in Southeast Asia over the period from 2000 to 2009. Our results confirm that stronger overall bank market as well as Islamic bank market competition in terms of lower concentration or higher amount of Islamic banks is accommodative to increasing PLSR. There is evidence that overall bank market competition positively influences PLSR, and a developed banking system is supportive to the development of Islamic banking and to the increase of typical *Shari'ah*-

compliant equity-based instruments. Under these developed institutions of a banking system, an Islamic bank can achieve a competitive advantage over its Western counterparts by focusing on equity-based instruments in their product portfolio so that it can play a complementary rather than a substitutive role in the bank market dominated by Western intermediaries. According to comparable loan product portfolios between large Western and Islamic banks, our results suggest that there are crowding out effects among them. Regarding the individual bank characteristics, we find that PLSR decreases in capitalization, especially in least developed (Islamic) banking markets, as it is mainly the case in non-GCC countries in our sample. Under these least-developed conditions, refinancing is particularly difficult for Islamic banks. So, the capitalization of Islamic banks based in non-GCC is the decisive buffer against asset-side defaults, leading to risk-averse behavior with *Shari'ah*-compliant equity-based contracts. Finally, we find evidence that focusing on PLSR implies specializing in terms of decreasing bank size to overcome agency risks related to equity-based financial contracts during the investment phase.

Possible areas for further research, especially when more comprehensive data are available, would be to determine how the PLSR of Islamic banks will change when competition increases, more regulation and innovation on level of financial instrument and on an institutional level, takes place and when more refinancing sources exist. An unsolved question is also whether competition increases the risk of an Islamic bank failing given the institutional regulatory (also non-deposit insurance) and restricted refinancing conditions. Additional analyses and robustness tests could be done through alternative concentration rather competition measures such as the Lerner Index and Boone Indicator (see Schaeck and Cihak 2008, Carbo-Valverde et al. 2009). Further research can also examine other characteristics of individual banks, such as the ownership structure (see Jensen and Meckling 1976, Fama and Jensen 1983, Demsetz and Lehn 1985, Laeven and Levine 2009) and the merger status.

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Appendix

Table 1: *Shariah*-compliant negative and financial screens.

1. Stage: Negative branch and company individual screens.

Tobacco-Industry;
Weapons and Defence Industry;
(Interest-based) Financial intermediaries of western industrial countries;
Producing, selling, distilling or distributing alcoholic beverages;
Producing, selling, slaughting or distributing pork;
Entertainment industry (music, cinema, pornography, theatres, etc.);
Gambling activities (casinos, lotteries, betting);
Companies engaged in products related to aborted human foetuses or in human cloning;
Pollutive companies;
Employee dicsriminating companies.

2. Stage: Company individual financial ratio and income screens.

Debt /market value of equity < 33%;
Liquid assets + interest bearing debt / market value of equity < 33%;
Accounts payable from trade and delivery / market value of equity < 33%;
Revenue generated in the above negative screens / overall revenue < 5%.

Source: Own illustration.
Notes: Controlling for *Shari'ah*-compliance of an asset underlying a financial contract is a two-step procedure according to the disqualifying criteria in the list above. The fulfillment of the first stage builds the precondition for the second stage. First, the spectrum of *Shari'ah*-compliant assets is restricted under qualitative branch and company individual criteria. The second step in the following checks mainly the fulfillment of leverage ratios differing in the maturity. Additionally, this step includes a criterion with a combination of qualitative and quantitative screening in which the isolated checking of an asset is left.

Table 2: Geographic and annual distribution of the sample with Islamic banks.

Country	*Number of Banks*	*Annual observations*
GCC Countries		
Bahrain	16	81
Kuwait	8	43
Qatar	6	36
Saudi Arabia	1	4
UAE	6	34
Non- GCC Countries		
Egypt	2	15
Indonesia	2	15
Jordan	2	14
Lebanon	1	4
Malaysia	8	31
Syria	1	3
Turkey	3	15
Yemen	4	25
Total	*60*	320

Source: Own illustration based on Bankscope (Bureau van Djik Electronic Publishing) and on Islamic Banks and Financial Institutions Information System (IBIS).

Notes: The *Gulf Cooperation Council (GCC)* consists of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. It was founded 1981 in Abu Dhabi to cooperate in several fields as in economy, politics and culture. The decision for this geographical distribution is concerning to the relative high macroeconomic homogeneity among these states and their comparable market shares in the assets managed by Islamic banks. The differentiation between these country focus subsamples is also supported by our Mann-Whitney difference tests.

Table 3: Descriptive statistics of dependent and independent variables.

	Mean	Median	Std. Dev.	Maximum	Minimum	Obs.
PLSR	12.242	4.530	17.163	87.033	0.000	304
Equ	25.962	15.830	25.519	100.000	0.000	381
TA (Mil. USD)	8,720.000	1,240.000	32,200.000	468,000.000	14.861	380
Liq	28.738	23.900	22.646	100.000	0.000	381
Inflation	4.971	2.785	7.328	55.035	-4.865	600
GDP/CAP	18,011.390	14,098.300	17,269.450	91,477.780	532.421	600
HFI	64.834	65.200	8.031	76.300	36.292	600
Total						
Conc(3)	62.754	64.100	14.901	100.000	37.020	586
Conc(5)	78.414	79.910	14.413	100.000	55.000	586
HHI	18.873	16.570	8.764	64.500	8.390	594
No	26.278	21.000	18.038	81.000	1.000	600
Islamic						
Conc(3)	81.513	85.650	19.494	100.000	25.790	600
Conc(5)	90.197	98.910	13.117	100.000	42.7800	600
HHI	48.309	48.000	24.575	100.000	11.690	573
No	5.902	4.000	4.627	17.000	'0.000	600
Western						
Conc(3)	60.604	66.870	21.353	100.000	12.480	600
Conc(5)	76.950	87.210	22.056	100.000	19.950	600
HHI	24.050	26.010	10.341	64.480	8.500	544
No	20.377	14.000	17.905	77.000	1.000	600

Source: Own illustration based on Bankscope (Bureau van Djik Electronic Publishing) and on Islamic Banks and Financial Institutions Information System (IBIS).

Variable definitions: PLSR = profit and loss sharing ratio in percent; Equ = equity to total assets; TA = total assets in Mil. USD; Liq = liquidity to total assets; Inflation = average annual percentage change of inflation; GDP/CAP = gross domestic product per capital; EFI = Heritage Foundation/Wall Street Journal economic freedom index; Conc(3) = the fraction of total assets in USD held by three largest banks in percent; Conc(5) = the fraction of total assets in USD held by five largest banks in percent; HHI = the Herfindahl-Hirshman Index in terms of total assets in USD; No = number of banks. We regard the four alternative measures of bank market concentration for total banks (Islamic and Western together), for entirely Islamic banks as well as for entirely Western banks.

Table 4: Difference tests of dependent and independent variables.

	Total	GCC	Non-GCC	**Mann-Whitney U-Test**	Large	Small	**Mann-Whitney U-Test**	2000-2005	2006-2009	**Mann-Whitney U-Test**
	Median	Median	Median		Median	Median		Median	Median	
PLSR	4.530	6.522	3.191	0.000***	2.170	7.965	0.000***	4.533	4.045	'0.301
Equ	15.830	22.770	8.710	0.000***	13.000	19.080	0.000***	12.155	16.800	0.022***
TA (Mil. USD)	1,240.000	1,230.000	1,280.000	'0.860	4,220.000	444.000	0.000***	574.000	2,299.000	0.000***
Liq	23.900	10.800	38.675	0.000***	19.900	27.700	0.015**	21.750	24.500	'0.376
Inflation	2.785	2.464	4.555	0.000***	2.736	3.127	0.048**	1.793	4.678	0.000***
GDP/GAP	14,098.300	22,108.940	3,664.730	0.000***	15,761.110	12,066.050	'0.000***	11,889.980	20,496.910	0.000***
EFI	65.200	69.700	59.900	0.000***	64.586	66.100	0.532	66.500	64.586	0.005***

Notes: This table reports the results of difference tests between subsamples for the regarded dependent and independent variables in this study. We use the Mann-Whitney U-Test to do the difference tests in which the *p*-values are reported in the table. We built subsamples according to country focus (GCC vs. non-GCC), to bank size focus (large vs. small) and time period focus. Our Chi-square tests confirm the independence of these subgroups, so that we can exclude biases resulting from relationships between the criteria of bank size, country focus and of time period focus.

Variable definitions: PLSR = profit and loss sharing ratio in percent; Equ = equity to total assets; TA = total assets in Mil. USD; Liq = liquidity to total assets; Inflation = average annual percentage change of inflation; GDP/CAP = gross domestic product per capital; EFI = Heritage Foundation/Wall Street Journal economic freedom index.

***, ** and * indicate significance respectively at the 1%, 5% and 10% levels.

Table 5: Difference tests between bank market concentration variables.

	Complete	GCC	Non-GCC	**Mann-Whitney U-Test**	Large	Small	**Mann-Whitney U-Test**	2000-2005	2006-2009	**Mann-Whitney U-Test**
	Median	Median	Median		Median	Median		Median	Median	
Total BMC										
Conc(3)	64.100	66.280	53.320	0.000***	-	-	-	73.400	56.240	0.000***
Conc(5)	79.910	81.770	67.220	0.000***	-	-	-	90.790	74.390	0.000***
HHI	16.570	18.870	11.315	0.000***	-	-	-	23.690	14.250	0.000***
No	21.000	19.000	45.000	0.000***	-	-	-	19.000	26.000	0.000***
Islamic BMC										
Conc(3)	85.650	80.400	100.000	0.000***	-	-	-	93.840	77.850	0.000***
Conc(5)	98.910	93.430	100.000	0.000***	-	-	-	100.000	89.810	0.000***
HHI	48.000	44.630	54.630	0.000***	-	-	-	52.980	32.205	0.000***
No	4.000	6.000	2.000	0.000***	-	-	-	3.000	7.000	0.000***
Western BMC										
Conc(3)	66.870	69.520	30.775	0.000***	-	-	-	67.040	63.360	0.460
Conc(5)	87.210	89.560	45.555	0.000***	-	-	-	89.560	84.070	0.154
HHI	26.010	28.570	11.715	0.000***	-	-	-	31.770	20.780	0.000***
No	14.000	11.000	43.000	0.000***	-	-	-	12.000	15.000	0.018**

Notes: This table reports the results of difference tests between subsamples for the regarded bank market explanation variables in this study. We use the Mann-Whitney U-Test to do the difference tests in which the *p*-values are reported in the table. We built subsamples according to country focus (GCC vs. non-GCC), to bank size focus (large vs. small) and time period focus and differentiate between total, Islamic and Western bank market concentration (BMC) variables. Our Chi-square tests confirm the independence of these subgroups, so that we can exclude biases resulting from relationships between the criteria of bank size, country focus and of time period focus.

Variable Definitions: Conc(3) = the fraction of total assets in USD held by three largest banks in percent; Conc(5) = the fraction of total assets in USD held by five largest banks in percent; HHI = the Herfindahl-Hirshman Index in terms of total assets in USD; No = number of banks.

***, ** and * indicate significance respectively at the 1%, 5% and 10% levels.

Table 6: Regression results from estimates with the complete sample of Islamic banks over the period 2000-2009.

Dependent variable: ΔPLSR

	Total bank market variables				*Islamic bank market variables*				*Western bank market variables*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Bank market variables												
ΔConc(3)	-0.152**				-0.111				0.040			
ΔConc(5)		-0.256**				-0.116				-0.063		
ΔHHI			-0.362***				-0.084**				-0.051	
ΔNo				0.182				0.436*				0.120
Bank individual variables												
ΔEqu	-0.127	-0.128	-0.120	-0.135*	-0.135*	-0.135*	-0.133*	-0.135*	-0.132	-0.134	-0.125	-0.134
Δln(TA)	-5.613**	-5.801**	-5.643**	-5.377**	-5.501**	-5.453**	-5.913***	-5.488**	-5.341**	-5.486**	-5.546**	-5.370**
ΔLiq	-0.032	-0.032	-0.036	-0.033	-0.036	-0.033	-0.037	-0.034	-0.032	-0.034	-0.026	-0.033
Macro variables												
ΔInfl	-'0.061	-0.047	-0.059	-0.069	-0.089	-0.070	-0.084	-0.051	-0.068	-0.076	0.025	-0.074
ΔGDP/CAP	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
ΔEFI	-0.049	-0.015	-0.104	0.019	-0.063	-0.048	-0.175	0.048	-0.081	-0.031	-0.275	-0.036
Constant	1.287*	1.127	1.175	1.504**	1.424*	1.350*	1.386**	1.411*	1.398*	1.527**	1.126	1.498**
Obs.	233	233	234	234	234	234	227	234	234	234	212	234
F-Statistic	1,466	1,644	1.838*	1.526	1,588	1.489	1.699*	1,629	1,357	1,365	1.185	1.384
DW-Stat.	1,818	1,825	1,815	1,791	1.783	1.793	1,775	1.776	1,804	1.812	1.848	1.805
R^2	0.044	0.049	0.054	0.045	0.049	0.044	0.052	0.048	0.040	0.041	0.039	0.041

Notes: This table reports results from first-differenced equation with panel ordinary least squares (OLS) and White period coefficient covariance method (see Arellano 1987, White 1980) for our empirical model described in Section 3.3.
Variable definitions: PLSR = profit and loss sharing ratio in percent; Conc(3) = the fraction of total assets in USD held by the three largest banks in percent; Conc(5) = the fraction of total assets in USD held by the five largest banks in percent; HHI = the Herfindahl-Hirshman Index in terms of total assets in USD; No = number of banks; Equ = equity to total assets; ln(TA) = natural logarithm of total assets in USD; Liq = liquidity to total assets; Inflation = average annual percentage change of inflation; GDP/CAP = gross domestic product per capital; EFI = Heritage Foundation/Wall Street Journal economic freedom index.
***, ** and * indicate significance respectively at the 1%, 5% and 10% levels.

Table 7: Regression results from estimates with the subsample of Islamic banks from GCC over the period 2000-2009.

Dependent variable: ΔPLSR

	Total bank market variables				*Islamic bank market variables*				*Western bank market variables*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Bank market variables												
ΔConc(3)	-0.182				-0.326**				0.097			
ΔConc(5)		-0.264				-0.524***				-0.166		
ΔHHI			-0.384***				-0.229**				-0.151	
ΔNo				0.350				0.779**				0.145
Bank individual variables												
ΔEqu	-0.082	-0.083	-0.072	-0.076	-0.085	-0.084	-0.069	-0.076	-0.065	-0.081	-0.079	-0.075
Δln(TA)	-6.345	-6.448	-6.402	-6.297	-6.775*	-6.830*	-7.003*	-6.104	-6.064	-6.492	-6.254	-6.309
ΔLiq	0.068	0.066	0.062	0.058	0.056	0.056	0.063	0.050	0.068	0.067	0.068	0.068
Macro variables												
ΔInfl	0.700**	0.739**	0.665*	0.718**	0.658*	0.710**	0.657*	0.746**	0.648*	0.738**	0.703**	0.683**
ΔGDP/CAP	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
ΔEFI	-0.228	-0.161	-0.326	-0.020	-0.248	-0.256	-0.257	0.112	-0.340	-0.151	-0.216	-0.218
Constant	1.600*	1.530*	1.500	1.988	1.556*	1.353	1.359*	2.052**	1.619	2.089*	1.812*	1.857*
Obs.	140	140	140	140	140	140	140	140	140	140	140	140
F-Statistic	1.317	1.396	1.514	1.422	1.748*	1.950*	1.783*	1.618	1.261	1.286	1.249	1.239
DW-Stat.	1.872	1.873	1.855	1.816	1.805	1.793	1.832	1.804	1.849	1.866	1.861	1.850
R^2	0.065	0.069	0.074	0.070	0.085	0.094	0.086	0.079	0.063	0.064	0.062	0.062

Notes: This table reports results from first-differenced equation with panel ordinary least squares (OLS) and White period coefficient covariance method (see Arellano 1987, White 1980) for our empirical model described in Section 3.3. The *Gulf Cooperation Council (GCC)* consists of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. It was founded 1981 in Abu Dhabi to cooperate in several fields as in economy, politics and culture. The *GCC* sample includes 37 Islamic Banks in total.

Variable definitions: PLSR = profit and loss sharing ratio in percent; Conc(3) = the fraction of total assets in USD held by the three largest banks in percent; Conc(5) = the fraction of total assets in USD held by the five largest banks in percent; HHI = the Herfindahl-Hirshman Index in terms of total assets in USD; No = number of banks; Equ = equity to total assets; ln(TA) = natural logarithm of total assets in USD; Liq = liquidity to total assets; Inflation = average annual percentage change of inflation; GDP/CAP = gross domestic product per capital; EFI = Heritage Foundation/Wall Street Journal economic freedom index.

***, ** and * indicate significance respectively at the 1%, 5% and 10% levels.

Table 8: Regression results from estimates with the subsample of Islamic banks from non-GCC over the period 2000-2009.

Dependent variable: ΔPLSR

	Total bank market variables				*Islamic bank market variables*				*Western bank market variables*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Bank market variables												
ΔConc(3)	-0.171**				0.006				-0.032			
ΔConc(5)		-0.410***				0.042**				-0.110		
ΔHHI			-0.284**				0.000				0.005	
ΔNo				0.140				-0.032				0.180
Bank individual variables												
ΔEqu	-0.134*	-0.103	-0.151***	-0.184***	-0.186***	-0.188***	-0.184***	-0.186***	-0.178***	-0.172***	-0.198*	-0.183***
Δln(TA)	-5.242***	-5.639***	-5.030***	-4.651***	-4.939***	-5.023***	-5.161***	-4.929***	-4.964***	-4.915***	-4.588***	-4.573***
ΔLiq	0.034	0.036	0.037	0.041	0.038	0.037	0.047	0.037	0.036	0.037	0.068	0.040
Macro variables												
ΔInfl	-0.080	-0.079	-0.078	-0.083	-0.066	-0.061	-0.093	-0.068	-0.072	-0.092	0.051	-0.088
ΔGDP/CAP	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
ΔEFI	0.263	0.253	0.246	0.292	0.275	0.267	0.051	0.273	0.280	0.303	0.202	0.295
Constant	1.504***	1.494***	1.364***	1.600***	1.403***	1.376***	1.504***	1.404***	1.440***	1.558***	1,043	1.620***
Obs.	93	93	94	94	94	94	87	94	94	94	72	94
F-Statistic	2.043**	2.719***	2.151**	2.063**	1.883*	1.920*	1.868*	1.883*	1.895*	1.980*	1.434	2.124**
DW-Stat.	2,004	2.067	2.019	2.047	2.020	2.026	1.850	2.018	2.015	2.031	2.330	2.070
R^2	0.144	0.183	0.149	0.144	0.133	0.135	0.142	0.133	0.134	0.139	0.136	0.147

Notes: This table reports results from first-differenced equation with panel ordinary least squares (OLS) and White period coefficient covariance method (see Arellano 1987, White 1980) for our empirical model described in Section 3.3. The *Gulf Cooperation Council (GCC)* consists of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. It was founded 1981 in Abu Dhabi to cooperate in several fields as in economy, politics and culture. The *non-GCC* sample includes 23 Islamic Banks in total from the following countries: Egypt, Indonesia, Jordan, Lebanon, Malaysia, Syria, Turkey, Yemen.
Variable definitions: PLSR = profit and loss sharing ratio in percent; Conc(3) = the fraction of total assets in USD held by the three largest banks in percent; Conc(5) = the fraction of total assets in USD held by the five largest banks in percent; HHI = the Herfindahl-Hirshman Index in terms of total assets in USD; No = number of banks; Equ = equity to total assets; ln(TA) = natural logarithm of total assets in USD; Liq = liquidity to total assets; Inflation = average annual percentage change of inflation; GDP/CAP = gross domestic product per capital; EFI = Heritage Foundation/Wall Street Journal economic freedom index.
***, ** and * indicate significance respectively at the 1%, 5% and 10% levels.

Table 9: Regression results from estimates with the subsample of large Islamic banks over the period 2000-2009.

Dependent variable: ΔPLSR

	Total bank market variables				*Islamic bank market variables*				*Western bank market variables*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Bank market variables												
ΔConc(3)	-0.470**				-0.144				-0.069			
ΔConc(5)		-0.590***				-0.183				-0.296		
ΔHHI			-0.651***				-0.167**				-0.194	
ΔNo				0.269*				0.612*				0.161
Bank individual variables												
ΔEqu	-0.041	-0.045	-0.063	-0.055	-0.033	-0.048	-0.039	-0.062	-0.047	-0.035	-0.048	-0.048
Δln(TA)	-4.656*	-5.182*	-4.156*	-3.667	-3.933*	-3.845*	-4.151*	-3.834	-3.743	-4.418*	-3.750	-3.594
ΔLiq	0.181**	0.190***	0.168**	0.178**	0.164**	0.171**	0.157**	0.180***	0.165**	0.172**	0.166**	0.167**
Macro variables												
ΔInfl	0.185	0.211	0.133	0.077	0.107	0.100	0.079	0.055	0.048	0.150	0.070	0.044
ΔGDP/CAP	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
ΔEFI	0.006	0.074	-0.088	0.067	-0.104	-0.105	-0.064	0.085	-0.024	0.064	-0.021	-0.020
Constant	-0.088	-0.387	0.069	0.629	0.284	0.285	0.179	0.652	0.691	0.636	0.513	0.678
Obs.	104	104	104	104	104	104	104	104	104	104	97	104
F-Statistic	2.500**	3.180***	2.623***	2.105**	2.260**	2.254**	2.364**	2.344**	1,707	2.117**	1.609	1.764*
DW-Stat.	1,891	1.885	1.728	1.744	1,753	1.724	1.748	1.705	1,816	1.850	1.869	1.801
R^2	0.154	0.188	0.161	0.133	0.141	0.141	0.147	0.146	0.111	0.134	0.112	0.114

Notes: This table reports results from first-differenced equation with panel ordinary least squares (OLS) and White period coefficient covariance method (see Arellano 1987, White 1980) for our empirical model described in Section 3.3. To distinguish between large and small banks, we use the median bank size in total assets in USD (ca. 1,775 million) as the criterion of cutoff. The subsample of large Islamic banks consists of 30 intermediaries in which 19 are based in *GCC* countries.

Variable definitions: PLSR = profit and loss sharing ratio in percent; Conc(3) = the fraction of total assets in USD held by the three largest banks in percent; Conc(5) = the fraction of total assets in USD held by the five largest banks in percent; HHI = the Herfindahl-Hirshman Index in terms of total assets in USD; No = number of banks; Equ = equity to total assets; ln(TA) = natural logarithm of total assets in USD; Liq = liquidity to total assets; Inflation = average annual percentage change of inflation; GDP/CAP = gross domestic product per capital; EFI = Heritage Foundation/Wall Street Journal economic freedom index.

***, ** and * indicate significance respectively at the 1%, 5% and 10% levels.

Table 10: Regression results from estimates with the subsample of small Islamic banks over the period 2000-2009.

Dependent variable: ΔPLSR

	Total bank market variables				*Islamic bank market variables*				*Western bank market variables*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Bank market variables												
ΔConc(3)	-0.094				-0.135				-0.011			
ΔConc(5)		-0.161				-0.100				-0.029		
ΔHHI			-0.270*				-0.092				-0.135	
ΔNo				0.294				0.585				0.272
Bank individual variables												
ΔEqu	-0.145	-0.147	-0.140	-0.159	-0.157	-0.154	-0.163	-0.156	-0.153	-0.154	-0.168	-0.157
Δln(TA)	-6.675*	-6.784*	-6.721*	-6.695*	-6.717*	-6.652*	-7.451*	-6.719*	-6.645*	-6.650*	-6.963*	-6.643*
ΔLiq	-0.186	-0.188	-0.188	-0.196	-0.192	-0.188	-0.190	-0.200	-0.185	-0.185	-0.179	-0.188
Macro variables												
ΔInfl	-0.091	-0.085	-0.080	-0.101	-0.127	-0.097	-0.108	-0.071	-0.093	-0.097	-0.023	-0.110
ΔGDP/CAP	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
ΔEFI	0.005	0.026	-0.025	0.124	0.026	0.030	-0.217	0.156	0.019	0.022	0.443	0.048
Constant	1,722	1.641	1.547	1.925	1,820	1.711	1.768	1.791	1.839	1.856	1.662	1.933
Obs.	128	128	129	129	129	129	122	129	129	129	114	129
F-Statistic	1.770*	1.798*	1.901*	1.941*	1.861*	1.796*	1.865*	1.946*	1.775*	1.777*	1,550	1.849*
DW-Stat.	1,805	1,809	1.830	1.795	1,785	1.804	1.778	1.782	1,814	1,815	1.844	1.811
R^2	0.094	0.095	0.099	0.101	0.097	0.094	0.103	0.101	0.093	0.093	0.093	0.097

Notes: This table reports results from first-differenced equation with panel ordinary least squares (OLS) and White period coefficient covariance method (see Arellano 1987, White 1980) for our empirical model described in Section 3.3. To distinguish between large and small banks, we use the median bank size in total assets in USD (ca. 1,775 million) as the criterion of cutoff. The subsample of small Islamic banks consists of 30 intermediaries in which 18 are based in *GCC* countries.

Variable definitions: PLSR = profit and loss sharing ratio in percent; Conc(3) = the fraction of total assets in USD held by the three largest banks in percent; Conc(5) = the fraction of total assets in USD held by the five largest banks in percent; HHI = the Herfindahl-Hirshman Index in terms of total assets in USD; No = number of banks; Equ = equity to total assets; ln(TA) = natural logarithm of total assets in USD; Liq = liquidity to total assets; Inflation = average annual percentage change of inflation; GDP/CAP = gross domestic product per capital; EFI = Heritage Foundation/Wall Street Journal economic freedom index.

***, ** and * indicate significance respectively at the 1%, 5% and 10% levels.

Table 11: Regression results from estimates with the subsample of Islamic banks over the subperiod of 2000-2005.

Dependent variable: ΔPLSR

	Total bank market variables				*Islamic bank market variables*				*Western bank market variables*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Bank market variables												
ΔConc(3)	-0.097				-0.059				0.123			
ΔConc(5)		-0.364***				-0.250				-0.026		
ΔHHI			-0.158				-0.093				-0.008	
ΔNo				0.750**				1.485***				0.609
Bank individual variables												
ΔEqu	-0.301*	-0.275*	-0.289**	-0.325**	-0.311**	-0.291**	-0.291**	-0.277**	-0.327**	-0.316**	-0.444***	-0.340**
Δln(TA)	-5.593**	-6.022***	-5.568***	-4.748**	-5.600***	-5.619***	-6.719**	-5.461***	-5.380***	-5.502***	-4.843**	-4.908**
ΔLiq	-0.116	-0.123	-0.103	-0.145	-0.117	-0.125	-0.116	-0.119	-0.099	-0.114	-0.123	-0.136
Macro variables												
ΔInfl	-0.118**	-0.108**	-0.121**	-0.166**	-0.140*	-0.150*	-0.128**	-0.074	-0.108*	-0.126*	-0.019	-0.177**
ΔGDP/CAP	<0.001*	<0.001	<0.001	<0.001*	<0.001*	<0.001*	<0.001	<0.001	<0.001*	<0.001*	<0.001	<0.001*
ΔEFI	0.185	0.221	0.148	0.319	0.181	0.227	0.063	0.389	0.118	0.187	0.068	0.207
Constant	2.738	2.443**	2.766***	2.471**	2.791***	2.642***	2.779***	2.015**	2.818***	2.838***	2.978**	2.874
Obs.	110	110	111	111	111	111	107	111	111	111	87	111
F-Statistic	2.064*	2.431**	2.344**	3.564***	2.199**	2.437**	2.779***	3.480***	2.211**	2.134**	1.461	2.711**
DW-Stat.	2.072	2.148	2.079	2.135	2.038	2.076	2.043	2.048	2.043	2.054	2.287	2.137
R^2	0.124	0.143	0.137	0.195	0.130	0.142	0.139	0.191	0.131	0.127	0.115	0.156

Notes: This table reports results from first-differenced equation with panel ordinary least squares (OLS) and White period coefficient covariance method (see Arellano 1987, White 1980) for our empirical model described in Section 3.3. Here we regard the regression results over the subperiod of 2000-2005 to differentiate between global financial crisis and non-crisis years.

Variable definitions: PLSR = profit and loss sharing ratio in percent; Conc(3) = the fraction of total assets in USD held by the three largest banks in percent; Conc(5) = the fraction of total assets in USD held by the five largest banks in percent; HHI = the Herfindahl-Hirshman Index in terms of total assets in USD; No = number of banks; Equ = equity to total assets; ln(TA) = natural logarithm of total assets in USD; Liq = liquidity to total assets; Inflation = average annual percentage change of inflation; GDP/CAP = gross domestic product per capital; EFI = Heritage Foundation/Wall Street Journal economic freedom index.

***, ** and * indicate significance respectively at the 1%, 5% and 10% levels.

Table 12: Regression results from estimates with the subsample of Islamic banks over the subperiod of 2006-2009.

Dependent variable: ΔPLSR

	Total bank market variables				*Islamic bank market variables*				*Western bank market variables*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Bank market variables												
ΔConc(3)	-0.292				-0.285				-0.203			
ΔConc(5)		-0.206				-0.246				-0.278		
ΔHHI			-0.614*				-0.122*				-0.039	
ΔNo				0.033				0.109				0.013
Bank individual variables												
ΔEqu	-0.204	-0.204*	-0.199	-0.198	-0.215*	-0.211*	-0.215*	-0.200	-0.210	-0.212*	-0.197	-0.197
Δln(TA)	-5.986	-5.712	-5.884	-5.450	-6.422	-6.188	-5.800	-5.511	-6.299	-6.139	-5.438	-5.410
ΔLiq	-0.033	-0.027	0.030	0.024	0.025	0.025	0.016	0.023	0.023	0.025	0.023	0.024
Macro variables												
ΔInfl	-0.059	-0.043	0.033	0.012	0.048	0.034	-0.099	0.006	-0.024	0.034	0.011	0.011
ΔGDP/CAP	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
ΔEFI	-0.354	-0.347	-0.357	-0.437	-0.537	-0.482	-0.547	-0.427	-0.431	-0.330	-0.457	-0.460
Constant	0.606	0.824	0.865	1.166	1.121	1.193	1.789	1.262	2.192	1.605	1.156	1.138
Obs.	97	97	97	97	97	97	96	97	97	97	97	97
F-Statistic	1.345	1.087	1.318	0.954	1.376	1.147	1.194	0.961	1.162	1.258	0.950	0.949
DW-Stat.	1.563	1.588	1.570	1.583	1.508	1.511	1.513	1.578	1.515	1.562	1.582	1.584
R^2	0.094	0.079	0.094	0.070	0.098	0.083	0.087	0.070	0.084	0.090	0.070	0.069

Notes: This table reports results from first-differenced equation with panel ordinary least squares (OLS) and White period coefficient covariance method (see Arellano 1987, White 1980) for our empirical model described in Section 3.3. Here we regard the regression results over the subperiod of 2006-2009 to check possible influences of global financial crisis years.

Variable definitions: PLSR = profit and loss sharing ratio in percent; Conc(3) = the fraction of total assets in USD held by the three largest banks in percent; Conc(5) = the fraction of total assets in USD held by the five largest banks in percent; HHI = the Herfindahl-Hirshman Index in terms of total assets in USD; No = number of banks; Equ = equity to total assets; ln(TA) = natural logarithm of total assets in USD; Liq = liquidity to total assets; Inflation = average annual percentage change of inflation; GDP/CAP = gross domestic product per capital; EFI = Heritage Foundation/Wall Street Journal economic freedom index.

***, ** and * indicate significance respectively at the 1%, 5% and 10% levels.

Kapitel IV

Alman, Mahir

Shari'ah Supervisory Board Composition Effects On Islamic Banks' Risk-Taking Behavior

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Shari'ah Supervisory Board Composition Effects On Islamic Banks' Risk-Taking Behavior

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Abstract

Islamic banks underlie the fundamental principles of the *Shari'ah,* which encompass all business activities, financial contracts, and transactions. The *Shari'ah* Supervisory Board (SSB) monitors and certifies compliancy and is unique to the governance structure of Islamic banks compared to their Western counterparts. This study addresses the question of how the compositional characteristics of the SSB influence the loan portfolio risk-taking of Islamic banks. As such, we analyze to which degree the legal supervisory functions of a SSB affect the banks' risk-taking behavior. Over the period from 2000 to 2010, we regard cross-country bank-level data from the Middle East and Northern Africa as well as from Southeast Asia. Our results reveal evidence that the loan portfolio risk-taking of Islamic banks is positively influenced by increasing size of the SSB, as well as when top ranked *Shari'ah* scholars with multiple memberships have board mandates and when annual changes occur in the composition of a SSB, regarding particularly previous period variables with second lags. We find that supervisory effectiveness and disciplining power of individual bank SSBs towards the risk-taking in the loan portfolio of Islamic banks decrease in a decentralized *Shari'ah*-compliant governance structure. The reverse causality analysis shows strongly that SSB factors affect primarily loan portfolio risk-taking, not the other way around.

Key Words: Islamic Banking, *Shari'ah*-Board, Bank-Risk, Corporate Governance

JEL classification: G21, G32, G18

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1 Introduction

A specific characteristic in the governance structure of Islamic banks in contrast to their counterparts operating in accordance with Western industrialized countries (simply referred to as Western in the following), is the *Shari'ah* Supervisory Board (SSB). It exists in addition to typical bank board governance structures, but its functions are mainly to certify (ex-ante) and to monitor (ex-post) all financial contracts, transactions, and further activities of a bank on behalf of shareholders, stakeholders, and clients to ensure that they are compliant with the *Shari'ah*. Because deposit insurance is non-existent and the banks are dependent mainly on the refinancing on deposits, the functions of a SSB includes also protecting the interests of the depositors from excessive risk-taking on the asset side of an Islamic bank (see El-Hawary 2007, Van Greuning and Iqbal 2007, Grais and Pellegrini 2006, Warde 2010, Deloitte 2010).

In the literature, understanding the determinants of board structure as well as its influence on the management is a very important research question. The causal relationship between board characteristics and firm attributes is a key issue in empirical studies that requires robust econometric methods to control for endogeneity (see e.g. Yermack 1996, Hermalin and Weisbach 1998, 2003, Harris and Raviv 2008). In our study, we examine how characteristics of the SSB influence the loan portfolio risk-taking of Islamic banks. Thus, we address primarily the manner in which the business model of Islamic banks is adjusted to the composition of the SSB. Our intention is to examine the role of a SSB in the risk governance of a bank as a result of its tasks in monitoring and certifying *Shari'ah* compliance in all contracts, transactions, and business activities. Hence, we analyze empirically the supervisory effectiveness and the disciplinary power of individual bank SSBs on the loan portfolio risk-taking of Islamic banks. To shed some light on the explanatory factors, we examine the characteristics of individual bank SSBs and further

investigate individual bank and macroeconomic control variables. In this study, we also analyze the reverse causality in terms of adjustments in the compositions of SSBs to the business model of Islamic banks. According to this, we are able to control for problems of endogeneity, especially regarding the research question addressed in this study.

The characteristics of the SSB cover the total number of *Shari'ah* scholars as well as their belonging to top twenty rankings and annual changes in the overall composition of the SSB. To our knowledge, this is the first cross-country empirical analysis with this research approach. Empirical studies addressing this research question focus mainly on US or on European data. Thus, we do not know much about the relationship between board structure and firm attributes beyond these countries with different legal, institutional, and regulatory systems. This paper contributes to the US and European-based literature by examining the relationship of the SSB's structure and firm attributes for a sample of 82 Islamic banks from 13 countries that cover the Middle East and Northern Africa as well as Southeast Asia over the period from 2000 to 2010. As we focus on individual bank SSB influence factors, one important limitation of our study is to control for country-specific institutional effects on the corporate governance of Islamic banks (see La Porta et al. 1998, 2000, Demirgüc-Kunt, et al. 2004). This is due to the availability of data, because existing country-specific institutional indicators reflect the status of the Western financial system more than the Islamic system. However, the country focus robustness tests helps to gain insights into the relevance of these country-specific determinants.

Islamic banks must conform to the principles of the *Shari'ah*, the unique legislation for Muslims, consisting of primary (*Quran* and *Hadith* (*Sunna*)) and secondary sources (*Ijma* and *Qiyas*). *Shari'ah*-compliant financial contracts prohibit interest, gambling, and speculation in terms of *Riba*, *Gharar,* and *Maysir* and require profit and loss sharing (equity-based) backed by a

real asset. The involvements of assets in sectors like defense and entertainment or in companies that do not fulfill additional capital structure criteria are also forbidden (see Table 1 in the appendix, Quran: 2:275-2:280, Lewis and Algaoud 2001, Mirakhor and Iqbal 2007). There are regional specificities in the development of the Islamic financial system where it can exist alone or in parallel to a Western financial system (see Wilson 2009). Iran, Pakistan, and Sudan are the only countries entirely based on an Islamic financial system. Further directions for development are distinguishable when you consider the *Shari'ah*-governance structures of Islamic banks with either centralized or decentralized solutions (see Gintzburger 2011, Hasan 2011, Warde 2010). In principle, the Islamic financial sector will need innovations on the product portfolio level accompanied by regulations on the institutional level to solve the restrictions in refinancing and subsequently to be competitive with their Western counterparts. Regulations have to focus on income contracts that are typical to the *Shari'ah* (equity-based) due to their higher contribution to systemic bank-risk compared to fixed-income (debt-based) contracts (see Sundararajan 2007, Van Greuning and Iqbal 2007, Brunnermeier et al. 2010).

We find empirical evidence for our theoretical predictions. The results confirm especially for previous period explanation factors with two lags that loan portfolio risk-taking of Islamic banks is positively associated with increasing SSB size, multiple memberships of top-twenty ranked *Shari'ah* scholars in the board as well as with annual changes in total composition of the SSBs. The supervisory effectiveness and the disciplining power of individual bank SSBs towards the loan portfolio risk-taking of Islamic banks are weakened particularly in a decentralized *Shari'ah*-compliant governance structure. On the whole, our analysis of reverse causality shows that the business model of Islamic banks in terms of loan portfolio risk-taking adjusts to factors related to the composition of the SSB and not the other way around.

The remainder of the paper is organized as follows: Section 2 presents a review of the related literature on regulation, SSBs as well as on risk-taking in banks and how this study extends the existing work. In Section 3, we derive our hypotheses and describe our dataset and methodology. The discussion of our results is treated in Section 4, while Section 5 concludes our paper.

2 Related Literature

Although the functions of a SSB are not really comparable to a supervisory board in Western financial institutions, our literature review covers theoretical and empirical research findings referring to the latter, in which corporate governance issues have been analyzed extensively.

The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) and the Islamic Financial Services Board (IFSB) are the main bodies that set standards for Islamic financial intermediaries, and they have each compiled a list of guiding principles for *Shari'ah* governance. These standards refer to appointment, composition, and tasks of the SSB and require mainly independence, competence, confidentiality, consistency, and disclosure. According to the AAOIFI, the SSB should consist of at least three members who are recommended by the board of directors before they are appointed by the shareholders of an Islamic bank (see Nienhaus 2007a/2007b, Dar and Presley 2000, El-Hawary et al. 2007). This nomination and election process leads in practice to a SSB being dependent on the board of directors and shareholders, more so when SSB members are interested in continuing their mandates (being reelected) (see also Rammal 2006, Farook and Farooq 2011, Johnson 2009). So, a SSB is subject to an interest conflict between *Shari'ah* governance and the economic success of

a bank. As the secondary sources of the *Shari'ah* are especially relevant for certification and monitoring, they allow a scope in the interpretation and transformation so that SSB members can differentiate beyond strictly prohibited (*Haram*) and permissible (*Halal*) elements (see e.g. Alexander 2010, Rider 2012). Thus, according to the model by Adams and Ferreira (2007), a less independent SSB may decide in the interest of the management and the shareholders under the assumption that both share the same motives and it may not monitor the management too intensively (see also Hermalin and Weisbach 1998). It can be even more difficult to achieve a trade-off between *Shari'ah*-compliance and the economic success of a bank when bank market competition either among Islamic banks or with their Western counterparts is increasing and decisions about the compliance of financial innovations, which also cover the loan portfolio risk-taking, play an important role in holding or strengthening the market position. This could explain the changing behavior of SSBs over time from rather restrictive in an effort to maintain the origins and uniqueness of Islamic finance to more permissive, more focused on the demand side and attempting to fulfill tasks complementary to those of the Western financial system (see Nienhaus 2007a/2007b, Gintzburger 2011, Wilson 2009, El-Gamal 2011).

The standardization process of Islamic financial contracts, transactions as well as other business and governance structures has increased through the foundations of AAOIFI and IFSB. This raises the question of the remaining functions of individual SSBs when most of the Islamic banks, as in our database (approx. 80% of the total sample), are members of at least one of these two international, Islamic standard-setting organizations and follow their rules in several fields. Thus, the remaining functions include less the certification than the internal *Shari'ah* compliance and regulation as well as marketing functions concerning the reputation of SSB members. The certification process for individual SSBs becomes relevant in the event of financial innovations (see Nienhaus 2007a, El-Gamal 2011). The guiding principles of the AAOIFI or the IFSB do not

include detailed information about the duration, dismissal, and reappointment of a SSB member. There are also no statements regarding multiple memberships of *Shari'ah* scholars. An informal standardization is given through the fact that only a limited number of *Shari'ah* scholars have the required qualifications, which leads them to have multiple memberships. Thus, the top twenty scholars hold 621 positions, which constitutes almost 54% of the total available seats (see Ünal 2011, Farook and Farooq 2011). This concentration of SSB positions leads to further conflicts of interest because one scholar or scholar network has access to internal bank data of competing Islamic banks (see Grais and Pellegrini 2006, Wilson 2009, Rider 2012). There are mixed findings in the literature regarding whether the costs or the benefits outweigh from numerous and simultaneous board memberships. While the costs likely result from decreasing effectiveness of monitoring and thus of corporate governance, there may be beneficial effects from having board members that gain more experience or reputation (see e.g. Ferris et al. 2003, Fich and Shivadasani 2006). DeAngelo (1981) argues that auditors with more clients have "more to lose" by failing to report an issue.

Islamic banks are mainly financed by deposits because of restricted refinancing sources. Their deposits have mainly two forms – current accounts (*Wadiah*, *Qard Hassan*) and investment accounts ((un-)restricted *Mudarabah*). Although they share risks with an Islamic bank, investment account holders have no governance and monitoring rights. In addition, in compliance with the *Shari'ah,* there is no implicit or explicit deposit insurance, which leads to incentives for increased capitalization by banks, for decreased risk-taking by banks as well as for stronger monitoring incentives by depositors. However, beside these incentives that result from the lack of deposit insurance, a SSB is responsible for protecting the interests of depositors from excessive risk-taking behavior (see El-Hawary 2007, Van Greuning and Iqbal 2007, Errico and Farahbaksh 1998, Merton 1977). As mentioned above, this function is weakened through the dependence of a

SSB on the management and on the shareholders that result from the nomination and election processes. This weakened function results also from the fact that a SSB is not liable for losses from excessive risk-taking and that there is no contractual principal agency relationship between a SSB and depositors. However, Archer et al. (1998) pointed out that there is a bilateral dependency such that investment account holders depend on shareholders in monitoring the loan portfolio risk, while shareholders depend on investment account holders as a source for generating profit. Furthermore, particularly top ranked SSB members with multiple memberships have to consider reputational losses from excessive loan portfolio risk-taking and the potential losses resulting for depositors. Thus, a SSB underlies less the interests of the management and shareholders as can be first assumed by the nomination and election processes. Because Islamic banks are mainly funded by deposits, they have to keep in balance the maturity of assets and liabilities, which explains the typical domination of short-term fixed-income contracts with a share of about 80%, although profit and loss sharing is a main principle of the *Shari'ah*. While equity-based contracts that are typical for the *Shari'ah* span forms of *Mudarabah* and (Diminishing) *Musharakah*, debt-based contracts span mainly *Murabahah, Ijarah, Salam* and *Istisna*. These forms of equity-based and debt-based contracts are recognized by the most important international standard setting organizations (AAOIFI, IFSB); therefore, Islamic banks are not subject to legal uncertainty or operational risk when using them (see Khan and Mirakhor 1987, Visser 2009, Gintzburger 2011, Ali 2008, Archer and Haron 2007).

The *Shari'ah*-compliant governance and the Islamic finance as a whole developed differently, especially when comparing the member states of Gulf Corporation Council[1] (GCC) with Malaysia, which represent the two main markets (see Gintzburger 2011, Hasan 2011, Warde 2010). The most significant difference between the two is that the SSB governance structure is

[1] The *Gulf Cooperation Council (GCC)* consists of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. It was founded in 1981 in Abu Dhabi as cooperation in the fields of economics, politics, and culture.

ruled independently on an institutional bank level in the GCC, while it is organized on a state level in Malaysia with additional individual SSBs in Islamic banks. In such, the decentralized (internal) solution in the GCC is more oriented towards the market and thus innovation, while the centralized (external) approach as in Malaysia is more governance-related in the sense of the *Shari'ah*. However, there is a continuing harmonization and convergence between both complementary and substitutive approaches especially through the AAOIFI and IFSB (see Gintzburger 2011, Ali 2008, Sundararajan and Errico 2002).

Our study deals primarily with the research question of how the *Shari'ah*-compliant certification and monitoring function of a SSB towards all financial contracts, transactions, and business activities encompass also tasks of bank-risk governance. We look at how the characteristics and composition of the SSB influence the loan portfolio risk-taking of Islamic banks. Thus, we examine SSB determinants including the number of total scholars, the seats held by top twenty ranked *Shari'ah* scholars, and annual changes of total SSB compositions. We consider the size of the SSBs because Jensen (1993) argues that increasing board size is related to free-riding problems and longer durations for making decisions (see also Raheja 2005, Harris and Raviv 2008). These inefficiencies might be due to agency problems, but also because of coordination problems and the need for compromises (see Cheng 2008). However, this relationship is weakened when the size of the board increases in the complexity of a bank that is proxied such as its size in total assets (see Fama and Jensen 1983, Demsetz and Lehn 1985, Yermack 1996, Coles et al. 2008, Adams and Mehran 2011). Therefore, we can make a contribution to the question regarding the degree to which the loan portfolio risk-taking behavior of Islamic banks is determined by characteristics of the SSB beyond the scope of limited bank incentives to excessive risk-taking that arises from an increasing amount of liability capital (see Stiglitz and Weiss 1981). Thus, we consider the supply factors of the share of equity-based

contracts on the Islamic banks' assets side. There are numerous related studies on supervisory effectiveness and bank-risk taking incentives with different theoretical and empirical approaches, which can be found in the literature for Western banks based on US or European data (for literature review, see Delis and Staikouras 2011). As mentioned in the introduction, the causal relationship between board characteristics and firm attributes is a key issue in this research field. Thus, if the structure of the SSB impacts firm-specific measures (risk-taking, performance) rather than vice versa is the most relevant endogeneity problem. Most studies analyze one direction of the causal relationship, working hard to find the most suitable econometric method to handle endogeneity issues. In our study, we achieve additional robustness by examining the reverse direction of our primary research question in terms of how individual bank determinants (risk-taking, performance) influence the composition of the SSB. To our knowledge, this is the first study with this research approach that focuses entirely on Islamic banks based in the Middle East and Northern Africa as well as in Southeast Asia. We examine how the disciplinary effectiveness of SSBs, a specific characteristic of the governance structure of Islamic banks compared to their Western counterparts, differ according to legal, institutional, and regulatory systems in Islamic countries that are included in this study. The distinctive nature of SSBs results from its compliance to the *Shari'ah*, but also from the high concentration of SSB positions. Therefore, this study contributes to prior research by analyzing the consequences of having SSB scholars with multiple memberships on the banks' risk-taking behavior. Finally, this study also contributes to the literature regarding which role individual bank SSBs play between the interests of shareholders and other important bank stakeholders, such as depositors and regulators.

3 Empirical Framework

3.1 Development of Hypotheses

Jensen (1993) argues that increasing board size is related to free-riding problems and longer durations for making decisions. Beside these inefficiencies concerning to agency problems (see e.g. Raheja 2005, Harris and Raviv 2008), there are in addition coordination problems and the need for compromises (see Cheng 2008). Although, Harris and Raviv (2008) argue that the empirical relation between board size and firm-specific measures may be misleading due to endogeneity problems, the arguments in the literature suggest that a bigger board might be related to higher risk. Thus, we expect that the supervisory effectiveness and the disciplinary power of individual bank SSBs on loan portfolio risk-taking in Islamic banks decreases with a higher number of SSB members. Therefore, we analyze the following hypothesis:

Hypothesis 1: Increasing the total number of SSB members leads to additional loan portfolio risk-taking by Islamic banks.

Due to multiple memberships of top twenty *Shari'ah* scholars, we expect that their supervisory effectiveness and the disciplinary power on loan portfolio risk-taking suffer. In light of the highly concentrated positions on SSBs, we assume that the costs associated with decreasing effectiveness of monitoring and thus corporate governance outweigh the benefits of gaining more experience or solidifying their reputations (see e.g. Ferris et al. 2003, Fich and Shivadasani 2006, Ünal 2011, Farook and Farooq 2011). Thus, we state the following hypothesis:

Hypothesis 2: Increasing the number of top twenty-ranked SSB members leads to additional loan portfolio risk-taking by Islamic banks.

Finally, according to the nomination and election process, SSB members are dependent from the board of directors and shareholders, especially when they are interested in continuing

their terms on the board (being reelected). Thus, a SSB is affected by the conflict of interest between *Shari'ah*-compliant governance and the economic success of an Islamic bank. To achieve the latter aim, it should require SSB members who are more permissive than restrictive and who allow more loan portfolio risk-taking. So, we expect that an annual change in the composition of a SSB is associated with more risk-taking by an Islamic bank, more so when there is a change in the chairman position. From the discussion above, we derive the last hypothesis of our study:

Hypothesis 3: Annual changes in the composition of a SSB lead to additional loan portfolio risk-taking by Islamic banks.

3.2 Dataset

Our sample consists of an unbalanced panel of annual and unconsolidated report data from Islamic banks between 2000 and 2010. The sources of the bank and SSB data used for the empirical analysis are as follows: Bankscope (Bureau van Djik Electronic Publishing), Islamic Banks and Financial Institutions Information System (IBIS), Funds@Work (see Ünal 2011), Islamic Finance Information Service (IFIS), and our own research of the information presented on the web pages of Islamic banks in the sample to complete and to countercheck the selected data. We restrict our study to Islamic banks that operate in dual financial systems (Islamic and Western in parallel) to consider the possible influence of the Western bank market on the loan portfolio risk-taking behavior of their Islamic counterparts and so to, in principal, be able to compare the Islamic banks considered here. Furthermore, we include only banks that are full-fledged Islamic banks; thus, Western financial institutions with separate Islamic departments ("Islamic windows") are excluded. A further criterion for data selection is that the banks are based in countries where Muslims form the majority of the population. Finally, for comparability

under similar development conditions, we regard only Islamic banks from high-income to lower-middle-income economies according to the classification by the World Bank. As provided in Table 2, the total sample which fulfills these criteria consists of 82 banks across 13 countries. Based on the last available year, we found 314 available overall SSB positions in which the top twenty scholars of our dataset hold 154 positions (see Table 3). Considering the concentration of seats belonging to top-twenty SSB members, our dataset is representative to previous research (see e.g. Ünal 2011). When regarding the nationalities of SSB members, we can indicate in our dataset that over 60% are from GCC and that members from Bahrain and Kuwait dominate the boards. Among SSB members from Non-GCC, members with Malaysian and Syrian nationalities dominate the boards. If we consider strictly chairman positions, there is a similar picture regarding the nationalities included, but the distribution of these positions between GCC and Non-GCC is exactly the same.

Please insert Tables 2 and 3 about here.

3.3 Methodology

Our regression model for analyzing the relationship between the (credit) risk in the loan portfolio of Islamic banks, individual bank SSB and other control variables as well as macroeconomic control factors is based on the following equation:

$$\begin{aligned} Risk_{i,j,t} = {} & \beta_0 + \beta_1 Risk_{i,t-1} + \beta_2 SSBSize_{i,t-m} + \beta_3 SSBTop20_{i,t-m} + \\ & \beta_4 \Delta SSBTot_{i,t-m} + \beta_5 Equ_{i,t} + \beta_6 \ln(TA_{i,t}) + \beta_7 Liq_{i,t} + \\ & \beta_8 Inflation_{j,t} + \beta_9 GDPCAP_{j,t} + \beta_{10} EFI_{j,t} + \varepsilon_{i,j,t}, \qquad (1) \\ & m = 1,2, \end{aligned}$$

with $Risk_{i,j,t}$ as a loan portfolio risk variable of bank *i* in country *j* at time *t*. We use the following two variables to proxy the loan portfolio risk-taking of Islamic banks: Loan loss reserves to gross

loans (LLR) and loan loss provisions to gross loans (LLP). These loan portfolio risk proxies are used widely in the literature (see e.g. Dinger and Von Hagen 2009) and they indicate reserves or provisions, respectively, for losses expressed as the percentage of total loans. The higher the ratio of LLR and alternatively of LLP, the poorer the quality of the loan portfolio will be (see Bankscope glossary). Other measures of bank risk which are extensively used in the literature as the Z-index[2], the standard deviation of return on assets, and the ratio of non-performing loans to total loans (see e.g. Laeven and Levine 2009, Delis and Staikouras 2011) could not be considered due to the small amount of data and its low availability.

The composition characteristics of the SSB in the following encompass $SSB\_Size_{i,t-m}$ defined as the number of members in a SSB to account for free-riding and coordination problems. Then, we regard the percentage of SSB members with top-twenty rankings to consider multiple membership effects, reputational effects as well as the influence of network effects between top-ranked *Shari'ah* scholars. Finally, we use annual changes of the entire board to consider the influence of continuity (reelection) in the SSB on loan portfolio risk-taking. At the individual bank level, we include the following explanatory control variables: $Equ_{i,t}$ as the capitalization of a bank captured by equity to total assets, while $\ln(TA_{i,t})$ proxies the size of total assets in USD in natural logarithm to account for non-linear relations. Further, $Liq_{i,t}$ measures the liquidity as the ratio of liquid assets to total assets. This measure captures the split between liquid and illiquid assets and is associated with the uncertainty on the asset side that could be shielded with liquid assets. The individual bank control variables are included as a means for differentiating between the influences of capitalization, bank size, or liquidity and the characteristics of the individual bank SSB on loan portfolio risk-taking. At the macro-economic level, we consider the following

[2] The Z-index is defined as the sum of return on assets and equity to assets in the numerator and the standard deviation of return on assets in the denominator.

three macroeconomic control variables of the institutional development status: 1) inflation ($Inflation_{i,t}$), 2) per capita GDP ($GDPCAP_{i,t}$) and 3) the index of economic freedom ($EFI_{i,t}$) according to the Heritage Foundation/Wall Street Journal. The index covers ten benchmarks of economic and institutional development, such as business freedom, property rights, and fiscal freedom to proxy the status of a country's financial system. Finally, we include $\varepsilon_{i,t}$ as the error term.

To shed some light on the causal relationship between board characteristics and firm attributes, we also analyze the reverse of our primary research question, addressing the question of how bank individual determinants (risk-taking, performance) influence the composition of the SSB, which is based on the following equation:

$$\begin{aligned} SSB_{i,j,t} = {} & \beta_0 + \beta_1 Risk_{i,t-m} + \beta_2 ROA_{i,t-m} + \beta_3 Equ_{i,t} + \\ & \beta_4 \ln(TA_{i,t}) + \beta_5 Liq_{i,t} + \beta_6 Inf_{j,t} + \beta_7 GDPCAP_{j,t} + \\ & \beta_8 EFI_{j,t} + \varepsilon_{i,j,t}, \qquad (2) \\ m = {} & 1,2, \end{aligned}$$

wherein we also regard $ROA_{i,t-m}$ defined as return on average assets to include potential performance effects on the composition of SSBs. Table 4 reports the descriptive statistics of these variables used in the equations (1) and (2).

Please insert Table 4 about here.

As provided in Table 5, correlations between the variables used in the empirical analysis are not critical enough to consider multicollinearity problems.

Please insert Table 5 about here.

Given the endogeneity problems in the sample, estimations based on ordinary least squares (OLS) would produce inconsistent results. Thus, to control for endogeneity and to account for unobserved heterogeneity on the individual bank level, we use a dynamic panel regression based on generalized method of moments (GMM) as suggested by Arellano and Bond (1991) and by Blundell and Bond (1998) with predetermined and lagged endogenous variables in first differences. The dynamic panel regression is used because the composition of the SSBs is unlikely to affect the loan portfolio risk-taking of Islamic banks in the immediate term. To consider the possible influence that SSBs could have on loan portfolio risk-taking, lags of composition characteristics of SSBs have to be considered, as it would take time before the adjustments in the bank-risk governance are put into banking practice. In the estimations, our dataset allows us to consider only first and second lags of SSB variables to control the robustness of the results. To account for potential endogeneity of some explanatory variables, we use up to three-year lagged values as instruments. When using the dummy indicator for the annual change of SSB as dependent variable, we use a Probit-Model for estimation. For each regression, we test for first-order (AR1) and second-order (AR2) autocorrelation as well as for over-identifying restrictions (Sargan Test). Further controls for robustness are the estimations for alternative bank-risk proxies in the loan portfolio and different subsamples according to the criteria of country focus (GCC vs. Non-GCC) and bank size focus (large vs. small) as far as it is possible because of the restricted number of observations. The subsamples that focus on specific countries are constructed according to the different approaches of *Shari'ah*-compliant governance for Islamic banks in GCC and in Non-GCC (decentralized vs. centralized; see Gintzburger 2011, Hasan 2011, Warde 2010). This country distinction allows us to also consider possible influences on loan portfolio risk-taking that result from higher Islamic bank market competition in GCC than in Non-GCC (see Al-Hassan et al. 2010, Espinoza et al. 2010, Keeley 1990, Laeven and Levine

2009). As discussed in the introduction, our country focus robustness tests shed light onto how country-specific institutional characteristics affect the corporate governance of Islamic banks (see La Porta et al. 1998, 2000, Demirgüc-Kunt, et al. 2004).

The subsamples with a focus on the size of the banks are constructed especially to consider the effects that SSBs have on loan portfolio risk-taking in complex (large) and non-complex (small) Islamic banks (see Adams and Mehran 2011). We use the median bank size in total assets (ca. 1,857 million USD) as the cutoff criterion to achieve comparable weightings between both subsamples. Alternative subsample compositions to control for the robustness of our results and to avoid time period-specific biases could be achieved by examining different sub-periods, differentiating particularly between years of global financial crisis and non-crisis years. Because of lack of data, this is not possible and it should be left for further research. However, several empirical studies confirm the financial stability of Islamic banks, considering the years of financial crisis as well as in comparison to their Western counterparts, which result from higher capitalization and higher liquidity reserves (see Beck et al. 2010, Cihak and Hesse 2010, Al-Hassan et al. 2010, Hasan and Dridi 2010). Therefore, we assume that the years of financial crisis do not have a significant impact on the results based on the total sample of Islamic banks. As Table 6 reports, the tests for statistical differences that apply the Mann-Whitney U-Test strongly support the robustness checks with subsample compositions that include country-specific and bank-size focuses.

Please insert Table 6 about here.

4 Empirical Results

4.1 Entire Sample of Islamic Banks

In our broad sample and based on our primary risk-taking proxy LLR, we find significant negative evidence at the 1% level that a higher number of SSB members in the prior year decreases the risk-taking behavior of Islamic banks with a coefficient value of at least -1.88. This finding differs when regarding two years prior, as the influence is very significantly positive with a coefficient value of at least 3.2. Our alternative bank risk measure (LLP) has very significant positive coefficient values of at least 1.3 for the first and second lag variables. Thus, there is strongly significant evidence that our first Hypothesis is confirmed for second lags in such that the supervisory effectiveness and the disciplinary power of the SSB suffer under free-riding and coordination problems with an increasing amount of members (see Jensen 1993, Raheja 2005, Harris and Raviv 2007). Garas (2012) also finds that the amount of SSB members does not significantly impact their control of the activities of Islamic financial institutions according to the *Shari'ah*. However, our finding is contrary to the results by Pathan (2009) and by Minton et al. (2011) for financial firms as well as by Cheng (2008) for non-financial firms. They show that risk is negatively related to the size of the board as it is the case in our estimation specifications with LLR and first lag variables of SSB characteristics. Hence, this result supports our expectation that the SSB of an Islamic bank is a specific characteristic in the governance structure of Islamic banks in which there is no counterpart for Western banks. Continuing with the second SSB composition variable, we find ambivalent significant influences for our primary risk-taking variable LLR with different signs by the top twenty ranked SSB scholars, while there is consistent and robust influence (min. 4.7%) on the alternative risk proxy LLP. From this point of view, there is evidence for our second Hypothesis that SSB members having multiple memberships lower their effectiveness in disciplining Islamic banks in their risk-taking behavior

(see Fich and Shivadasani 2006). As more than three-fourths of the top twenty ranked scholars are from GCC member countries, our results confirm that permissive behavior in loan portfolio risk-taking has a tendency to outweigh restrictive behavior. Next, when regarding the effect of an annual change in the composition of the SSB, there is very significant evidence on the 1% level that a new composition in the previous year has a negative influence on loan portfolio risk-taking with a coefficient value of at least -1.012, while it is positive in the case of two years prior, which is not significant for the alternative risk proxy. Thus, there is evidence for our third Hypothesis from the perspective that changes in the composition and structure of the SSB two years prior are associated with the choice of members who bear more the risk-taking interests of the board of directors and shareholders, if we assume that both share the same motives. The different influence of the annual change variable referring to the composition of a SSB in the estimation specification with first and second lag variable implicates that at the beginning of the terms of new scholars, they are more restrictive due to the fact that they need time to understand the loan portfolio risks on the asset side before they can permit them. On the individual bank level, we find strong evidence that loan portfolio risk taking in terms of LLR decreases with capitalization. In contrast to the "risk-absorption" hypothesis (see e.g. Bhattacharya and Thakor 1993, Repullo 2004, Von Thadden 2004), increasing amount of liability capital reduces the incentives to take excessive risks (see Stiglitz and Weiss 1981, Diamond and Rajan 2000, Koziol and Lawrenz 2009). This relationship is not robust for the alternative risk variable of LLP, in which the influence is very significantly positive. The different specifications do not show consistent results for the variable pertaining to the size of the banks. We would expect that larger banks profit from widespread deposit-gathering networks and from loan portfolio risk diversification (see Deep and Schaefer 2004, Berger and Bouwman 2009), especially when regarding the restrictions in refinancing posed on Islamic banks. Further, we find evidence that illiquidity lowers the amount

of risk shield on the asset side of an Islamic bank, leading to a decrease in loan portfolio risk-taking (see Diamond and Dybvig 1983, Diamond 1996). However, this result is not robust for the alternative risk proxy. On the macroeconomic level, we find significant but contrary results for the influence of inflation on the two loan portfolio risk-taking measures. There is no clear evidence that higher inflation makes risk-taking in the loan portfolio more attractive. Moreover, while we find no explanatory effect of per capita GDP, there is evidence that increasing economic and institutional development are accommodative to loan portfolio risk-taking due to lower degrees of asymmetric information, liquidity constraints, and capital costs. The null hypothesis for over-identifying restrictions is rejected through the Sargan Test, thus suggesting that the instruments are valid. Our first-order (AR1) and second-order (AR2) autocorrelation tests reject the presence of a serial correlation. The results of the entire sample are summarized in Table 7.

Please insert Table 7 about here.

4.2 Checking for Robustness

The following results aimed at controlling the robustness and consequently their interpretations should be treated cautiously due to the restricted number of observations that are available for Islamic banks that fulfill the criteria specified above and due to the endogeneity problem. In the following, the discussion of the subsample results is focused on our primary loan portfolio risk measure LLR, as the estimations with our alternative proxy LLP do not have enough observations. The results with reverse causality analysis in terms of adjustments to the compositions of SSB on the business model of Islamic banks are discussed only with the bank risk proxy of LLR, as the estimations with the alternative variable lead to similar results. Hence, the results of the latter proxy are not reported for brevity. The same argument explains why we only report our results for the entire sample, as the results for subsamples with country and bank

size focus lead to similar conclusions. We employ several econometric methods to achieve robust and valid results, as discussed in the methodologies mentioned above.

For the robustness of our results, we first construct two subsamples of Islamic banks based in GCC or Non-GCC, respectively, concerning to the different approaches of *Shari'ah*-compliant governance. This allows us also to distinguish between Islamic banks operating under comparable macroeconomic and Islamic finance market conditions as in the GCC and Islamic banks operating under more heterogeneous conditions as in the Non-GCC. Except in Malaysia, Islamic banks from GCC conduct their business in a stronger Islamic bank market competition than their counterparts from Non-GCC (see Al-Hassan et al. 2010, Espinoza et al. 2010). The different impacts of the composition variables of the SSB when considering the effects of previous year and of two years prior continue as in the entire sample. In the GCC sample, the prior year size variables of the SSB have positive insignificant coefficients (min. 0.3) and a significant positive influence on the 10% level for two years prior variables. As in the entire sample, the loan portfolio risk-taking of Islamic banks from Non-GCC is negatively affected by the SSB size indicator with first lag on a significance level of at least 10% with a coefficient value of at least -1.6. The SSB size variable with two lags has a positive, but insignificant influence with a coefficient value of 1.8. Thus, we find weak evidence for our Hypothesis 1 in terms of a positive relationship between the number of SSB members and loan portfolio risk-taking in Islamic banks from GCC. For their counterparts from Non-GCC, we find that increasing number of members in a SSB in previous year lead at the least to more restrictive behavior in the current year. Due to the centralized *Shari'ah*-governance approach that applies particularly to Islamic banks from Non-GCC, we find that the increasing amount of SSB members is more restrictive on loan portfolio risk-taking, while it is more permissive for their counterparts from GCC. Next, when examining the effect that the top twenty ranked members of SSBs have on

bank risk-taking behavior, there is significant (min. 10% level) positive influence for previous year variables in Islamic banks from GCC with a coefficient value of at least 0.062. In contrast, one estimated specification shows that there is significant evidence (5%) that the risk-taking behavior of Islamic banks from Non-GCC is negatively affected with a coefficient value of -0.806. Both subsamples have an insignificant negative coefficient of the SSB top twenty variables with two prior years (min. -0.105). In contrast to the Non-GCC sample, the results of the GCC sample support our second Hypothesis such that increasing the number of top twenty ranked SSB members leads to additional loan portfolio risk-taking by Islamic banks. This result implicates that the supervisory effectiveness and the disciplinary power on loan portfolio risk-taking by scholars with multiple memberships suffer especially under a decentralized *Shari'ah*-governance structure, as the centralized counterpart limits the influence of individual members – either permissive or restrictive - and due to the fact that Islamic banks from Non-GCC prefer to fill SSB positions with members from their home country, which limits the number of seats that any given scholar holds. Aside from one exception, the annual change variable of the compositions of SSBs with first lag confirm for both subsamples the negative significant (min. 5% level) influence of a change on bank risk-taking with coefficient values of at least -2.2. The second lag variables are insignificant with a positive sign for the GCC sample and a negative sign for the Non-GCC sample. Thus, there is no significant evidence for our third Hypothesis, which predicts that annual changes in the composition of a SSB are positively associated with additional loan portfolio risk-taking by Islamic banks. We find evidence that at least in the beginning of their terms, scholars are more restrictive than permissive because new scholars need time to understand the risks before they can permit them. The evidence is stronger for Islamic banks from Non-GCC, as their SSBs have lower levels of multiple memberships and therefore less networking between the scholars; thus, changes in the composition of the SSBs have a greater

impact on their decisions. The distinction according to subsamples with country focus shows how the roles of SSBs differ regarding their influence on loan portfolio risk-taking. This finding is due to the different approaches to *Shari'ah*-governance between GCC countries and Non-GCC countries (centralized vs. decentralized), but it also suggests that the role of SSBs at Islamic banks differ in a more competitive bank market such as in countries within the GCC. As discussed in the literature survey, the decentralized approach of *Shari'ah*-compliant governance at Islamic banks in GCC is more orientated towards market and innovation than the centralized approach, which is common mainly in Non-GCC. Concerning to the reason that the overall and the chairman positions are dominated by *Shari'ah*-scholars from GCC (see Table 3 in the appendix), the probability is relatively high that SSB positions are taken by these scholars who are more permissive than restrictive with a demand side orientation, but our results indicate that the *Shari'ah*-governance structure decisively impacts the role of individual banks' SSBs in governing the risks that are taken at Islamic banks. Compliance to the *Shari'ah* and the economic success of a bank underlies a trade-off which is more difficult to solve when bank market competition among either Islamic banks or with their Western counterparts is increasing, which, in turn potentially increases their risk-taking behavior in the loan portfolio (see Boyd and De Nicol´o 2005). However, this is not in the focus of our study and it should be treated more in detail in an own study. The results for the subsamples of Islamic banks from GCC and Non-GCC are summarized in Table 8.

Please insert Table 8 about here.

Further robustness of our results from the entire sample is achieved when differentiating between larger and smaller Islamic banks. We use the median bank size in total assets (ca. 1,857 million USD) as the criterion of cutoff to achieve similar weightings between both subsamples.

The distinction according to bank size makes it possible to consider effects that SSBs have on loan portfolio risk-taking in complex (large) and non-complex (small) Islamic banks.

The previous year variables regarding the size of the SSB have negative signs for large and small Islamic banks, but they are insignificant in all but one case. In this case, increasing the number of members within a SSB negatively influences the loan portfolio risk-taking attitude of Islamic banks with a coefficient value of -6.4 on a 5% significance level. The second lags of SSB size variables confirm significantly for small Islamic banks (6.2) our first Hypothesis, while the coefficient for their large counterparts is insignificant but positive (1.5). This confirms our expectation that the problem of free-riding in disciplining Islamic banks in their loan portfolio risk-taking by SSBs is lower in large and complex Islamic banks than in their small and non-complex counterparts (see Adams and Mehran 2011). For the number of members in a SSB with second lags, this relationship is stronger for small than for large Islamic banks because the latter typically has a higher degree of complexity, and thus requires more time and effort by the top-ranked SSB members. Furthermore, *Shari'ah* scholars should be interested in fulfilling their functions better in large Islamic banks than in their small counterparts to continue their reputational mandates in one of the leading Islamic banks. When considering the influence of top twenty SSB members, we find consistent positive coefficients for the lagged variables in both subsamples with a coefficient value of at least 1.7, despite in one case in which it is significantly (1%level) negative for smaller Islamic banks with a coefficient value of -0.3. Here, we find the tendency of top ranked *Shari'ah* scholars who have multiple memberships in SSBs to concentrate their bank-risk disciplinary effort on large Islamic banks at the expense of their small counterparts. This is typically connected with higher complexity in large banks and with factors concerning scholars' desire to have a position in one of the leading Islamic banks and so to improve their reputation. Next, by regarding the annual change of SSB compositions, the risk-

taking behavior of large and small Islamic banks reacts significantly negatively to a new board selection in the previous year. A change in the composition of the SSB two years prior again affects large Islamic banks negatively, while there is an insignificant coefficient with a positive value (0.248) for small Islamic banks. In the beginning of their memberships, new scholars need time to understand the risks before they can permit them. This is especially true for large and complex Islamic banks. The results of the subsamples for large and small Islamic banks are summarized in Table 9.

Please insert Table 9 about here.

Our empirical results referring to reverse causality analysis in terms of how dependent the composition characteristics of SSBs are on risk-taking (LLR) and performance factors (ROA) in Islamic banks are discussed in the following. The dependent variables of number of SSB members and the dummy variable for an annual change of the total composition of a SSB are not influenced by risk-taking behavior or performance factors for their first lag and second lag specifications. When examining the influence of risk-taking and performance variables on the number of top-twenty ranked SSB members, we indicate a significant negative relationship of the independent variables with first lag, while there is no significant effect by their counterparts with second lag. Increasing loan portfolio risk-taking in the previous period with first lag, decreases the number of scholars with multiple memberships in a bank individual SSB. Thus, there is evidence that the Hypothesis 2 is true to both directions and this finding implicates that there is endogeneity especially between loan portfolio risk-taking variable and the indicator for multiple memberships. Therefore, we conclude on the whole from reverse causality analysis that there is significant evidence that the business model of Islamic banks in terms of loan portfolio risk-

taking is guided by factors related to the composition of the SSB rather than vice versa. The results of reverse causality analysis are summarized in Table 10.

Please insert Table 10 about here.

In sum, our empirical results of the entire sample and of the subsamples reveal evidence that the previous composition of individual bank SSBs influence current loan portfolio risk-taking. The empirical results support our method to differentiate between the effects of the compositions of the SSBs in the prior year and in two prior years. Increasing the size of the SSB, multiple memberships of top twenty ranked *Shari'ah* scholars and annual changes in the composition of SSBs tend to lead to a decrease in the supervisory effectiveness in disciplining the loan portfolio risk-taking behavior of Islamic banks. The positive relation between board size and risk contradicts the earlier empirical literature (see e.g. Pathan 2009, Cheng 2008, Minton et al. 2011), and confirms that the research focus of this study contributes to the literature. According to the different approaches of *Shari'ah* governance structures at Islamic banks based in GCC (decentralized) and in Non-GCC (centralized), we find evidence that the disciplining function of SSBs towards the risk-taking behavior of Islamic banks, can be better fulfilled in Non-GCC than in GCC countries. Moreover, due to higher complexity in large than small banks, there is weak support that the disciplining power of SSBs regarding a bank's risk-taking in the loan portfolio concentrates more on large Islamic banks. This issue also results from the fact that positions within SSBs in large Islamic banks are associated with better reputations and prestige, so the scholars are more interested in fulfilling their functions in these banks than in their small counterparts. Therefore, scholars who have a mandate in a SSB of a large Islamic bank have "more to lose" by failing to report an issue (see also DeAngelo 1981). As the causal relationship between board characteristics and firm attributes is a key topic in the literature, our analysis of

the reverse causality strongly confirms that the business model of Islamic banks adjusts for the differing characteristics of the banks' SSBs. Thus, the analysis of our primary research question and the associated theoretical predictions are supported by our empirical results. On the basis of a series of tests, the estimates find evidence for our hypotheses in which the equations are neither over-identified nor there is evidence of first-order (AR1) or second-order (AR2) serial correlation in most cases.

5 Conclusions

Islamic banks underlie the guidelines of the *Shari'ah* as the unique and global legislation for Muslims, in which interest, gambling, and speculation are prohibited and financial contracts have to be based on real assets and on profit and loss sharing (equity-based). Furthermore, financings have to fulfill specific negative and financial screening criteria which are comparable to a broader case of socially responsible investments (SRI). In contrast to their Western counterparts, a specific characteristic in the governance structure of Islamic banks is the *Shari'ah* Supervisory Board (SSB) which is responsible for monitoring and certifying that all contracts, transactions, and other business activities are compliant to the *Shari'ah*. In our study, we empirically analyze the influence that the individual composition of a bank's SSB has on an Islamic bank's risk-taking behavior in the loan portfolio (credit risk) to examine the supervisory effectiveness and the disciplining power. Thus, we address the question of how the certification and monitoring function of a SSB on behalf of the *Shari'ah* affect the loan portfolio risk-taking behavior. Here, we regard SSB characteristics including the total number of scholars as well as their top twenty rankings and annual changes in the composition of SSBs. Our panel analysis is

based on a cross-country sample with Islamic banks based in the Middle East and Northern Africa as well as in Southeast Asia over the period from 2000 to 2010.

Our results confirm that increasing the size of SSBs, multiple memberships of top twenty ranked *Shari'ah* scholars, and annual changes in the composition of SSBs are accommodative to increasing the loan portfolio risk-taking of Islamic banks, especially when previous effects with two lags of the composition variables of SSBs are considered. The supervisory effectiveness and the disciplining power of SSBs towards loan portfolio risk-taking behavior in Islamic banks suffer especially in case of decentralized *Shari'ah*-compliant governance structures as it is practiced in the GCC. When comparing these results with the analysis of reverse causality, there is evidence that characteristics of the SSB influence primarily loan portfolio risk-taking rather than vice versa. The resulting policy implication is that the Islamic banking market should have a centralized governance approach to bring more bank market stability, to reduce legal risk through harmonization of financial practices, to decrease costs of bank individual SSBs as well as to solve the problem of high concentration of seats among the top ranked scholars that lead to further conflicts of interest (see also Alexander 2010, Deloitte 2010, Rider 2012, Chapra and Ahmed 2002). Finally, the centralized governance structure promises to maintain the origins and the uniqueness of Islamic finance and to be more governance-orientated instead of a decentralized structure in which the success of an Islamic bank and market side interests underlie stronger a trade-off to the *Shari'ah*-compliant governance.

A possible area for further research would be to examine how the influence of SSB characteristics on Islamic banks' risk-taking in their loan portfolio depends on the degree of separation of ownership and control (see Jensen and Meckling 1976, Fama and Jensen 1983, Demsetz and Lehn 1985, Laeven and Levine 2009). Regarding this, the ownership structure can

also affect the relation between the governance effect of SSBs and the loan portfolio risk-taking by Islamic banks. In addition, the determinants of loan portfolio risk-taking can be extended to additional characteristics of SSBs, such as educational background, the financial expertise of *Shari'ah* scholars as well as the degree of independence of SSB members (see Minton et al. 2011, Pathan 2009). Further analyses and robustness tests, especially when more comprehensive data are available, could be done using alternative bank-risk proxies (see e.g. Laeven and Levine 2009, Delis and Staikouras 2011).

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Appendix

Table 1: *Shari'ah*-compliant negative and financial screens.

1. Stage: Negative branch and company individual screens.
Tobacco industry; Weapons and defence industry; (Interest-based) Financial intermediaries of western industrial countries; Producing, selling, distilling or distributing alcohilic beverages; Producing, selling, slaughting or distributing pork; Entertainment industry (music, cinema, pornography, theatres, etc.); Gambling activities (casinos, lotteries, betting); Companies engaged in products related to aborted human foetuses or in human cloning; Pollutive companies; Employee dicsriminating companies.
2. Stage: Company individual financial ratio and income screens.
Debt / market value of equity < 33%; Liquid assets + interest bearing debt / market value of equity < 33%; Accounts payable from trade and delivery / market value of equity < 33%; Revenue generated in the above negative screens / overall revenue < 5%.

Source: Own illustration.
Notes: Controlling for *Shari'ah*-compliance of an asset underlying a financial contract is a two-step procedure according to the disqualifying criteria in the list above. The fulfillment of the first stage builds the precondition for the second stage. First, the spectrum of *Shari'ah*-compliant assets is restricted under qualitative branch and company individual criteria. The second step in the following checks mainly the fulfillment of leverage ratios differing in the maturity. Additionally, this step includes a criterion with a combination of qualitative and quantitative screening in which the isolated checking of an asset is left.

Table 2: Geographic and annual distribution of the sample with Islamic banks.

Country	*Number of banks*	*Annual observations*
GCC countries		
Bahrain	22	148
Kuwait	9	59
Qatar	5	33
Saudi Arabia	4	20
UAE	10	56
Non-GCC countries		
Egypt	2	19
Indonesia	2	17
Jordan	3	23
Lebanon	2	6
Malaysia	15	89
Syria	2	8
Turkey	3	15
Yemen	3	28
Total	82	521

Source: Own illustration.
Notes: The *Gulf Cooperation Council (GCC)* consists of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. It was founded 1981 in Abu Dhabi to cooperate in several fields as in economy, politics and culture. The decision to regard *GCC* separately is concerning to the following reasons: relative high macroeconomic homogeneity, comparable market shares in the assets managed by Islamic banks, similar SSB governance structure and higher Islamic bank market competition than in *non-GCC.*

Table 3: Shari'ah Supervisory Board (SSB) members by nationality and by ranking.

Nationality	*Overall board positions*	*Chairman positions*	*Overall board positions of top 20 scholars*	*Chairman positions of top 20 scholars*
GCC Countries				
Bahrain	57	10	36	8
Kuwait	62	14	47	12
Qatar	20	6	17	6
Saudi Arabia	41	11	18	7
UAE	10	0	0	0
Non-GCC Countries				
Egypt	14	10	8	8
Indonesia	7	2	0	0
Jordan	8	2	0	0
Lebanon	4	0	0	0
Malaysia	50	11	4	0
Pakistan	3	1	0	0
Sudan	2	0	0	0
Syria	29	12	24	11
Turkey	1	1	0	0
Yemen	6	2	0	0
Total	314	82	154	52

Source: Own illustration.

Notes: For this listing and ranking we include the SSB memberships of the last available year of an Islamic Bank in our dataset. The *Gulf Cooperation Council (GCC)* consists of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. It was founded 1981 in Abu Dhabi to cooperate in several fields as in economy, politics and culture. The decision to regard *GCC* separately is concerning to the following reasons: relative high macroeconomic homogeneity, comparable market shares in the assets managed by Islamic banks, similar SSB governance structures and higher Islamic bank market competition than in *non-GCC.*

Table 4: Descriptive statistics over the period 2000-2010.

	Mean	Median	Std. Dev.	Max.	Min.	Obs.
LLR	5.944	2.950	12.130	100.000	-6.900	491
LLP	3.963	1.010	11.594	106.610	0.000	324
ROA	2.480	1.395	9.896	91.460	-45.310	534
SSB_Size	4.035	4.000	1.267	8.000	1.000	521
SSB_Top20	43.515	40.000	36.340	100.000	0.000	537
ΔSSB_Total	0.254	0.000	0.436	1.000	0.000	437
Equ	29.127	17.715	27.808	100.000	0.000	558
TA (Mil. USD)	9,821.263	1,364.640	33,357.249	468,497.000	14.860	561
Liq	28.456	23.900	21.958	100.000	0.000	550
Inflation	4.130	2.618	6.223	55.035	-4.865	902
GDPCAP	17,522.609	13,710.520	16,287.957	91,477.777	532.421	902
EFI	66.146	66.440	8.043	76.332	36.291	773

Source: Own illustration based on Bankscope.

Notes: Thjs Table reports the descriptive statistics of the dependent and independent variables which we consider in this study.

Variable definitions: LLR = loan loss reserves to gross loans; LLP = loan loss provisions to gross loans; ROA = return on average assets; SSB_Size = amount of SSB members; SSB_Top20 = percentage of SSB members with top twenty rankings (see Ünal 2011); ΔSSB_Total = dummy variable indicating one if the SSB composition in total changed annually and zero otherwise; Equ = equity to total assets; ln(TA) = natural logarithm of total assets in USD; Liq = liquidity to total assets; Inflation = annual percentage change of inflation; GDP/CAP = gross domestic product per capital; EFI = Heritage Foundation/Wall Street Journal economic freedom index.

Table 5: Correlation statistics between the variables used in the empirical analysis.

	1	2	3	4	5	6	7	8	9	10	11	12
1. LLR	1.000											
2. LLP	0.348	1.000										
3. ROA	-0.446	-0.249	1.000									
4. SSB_Size	0.115	0.057	0.013	1.000								
5. SSB_Top20	-0.034	0.038	0.081	0.051	1.000							
6. ΔSSB_Total	0.005	-0.076	-0.013	0.211	-0.117	1.000						
7. Equ	0.305	0.217	0.057	-0.077	0.342	-0.144	1.000					
8. TA	-0.008	-0.076	0.060	0.216	-0.078	0.054	-0.056	1.000				
9. Liq	0.046	-0.113	-0.049	0.055	-0.299	0.065	0.015	0.069	1.000			
10. Inflation	-0.018	-0.084	0.051	-0.037	-0.091	-0.134	-0.054	-0.057	0.031	1.000		
11. GDPCAP	-0.056	-0.035	0.196	0.036	0.451	-0.058	0.211	-0.105	-0.272	0.014	1.000	
12. EFI	0.082	0.244	0.087	0.161	0.464	-0.014	0.344	0.014	-0.170	-0.507	0.297	1.000

Notes: This table reports the correlation coefficients between the regarded dependent and independent variables used in the empirical analysis.
Variable definitions: LLR = loan loss reserves to gross loans; LLP = loan loss provisions to gross loans; ROA = return on average assets; SSB_Size = amount of SSB members; SSB_Top20 = percentage of SSB members with top twenty rankings (see Ünal 2011); ΔSSB_Total = dummy variable indicating one if the SSB composition in total changed annually and zero otherwise; Equ = equity to total assets; ln(TA) = natural logarithm of total assets in USD; Liq = liquidity to total assets; Inflation = annual percentage change of inflation; GDP/CAP = gross domestic product per capital; EFI = Heritage Foundation/Wall Street Journal economic freedom index.

Table 6: Difference tests of dependent and independent variables.

	Total	GCC	Non-GCC	**Mann-Whitney U-Test**	Large	Small	**Mann-Whitney U-Test**
	Median	Median	Median		Median	Median	
LLR	2.950	2.550	3.400	0.000***	3.150	2.510	0.080*
LLP	1.010	0.955	1.210	0.035**	0.830	1.580	0.000***
ROA	1.395	2.160	0.700	0.000***	1.490	1.290	0.801
SSB_Size	4.000	4.000	4.000	0.985	4.000	4.000	0.000***
SSB_Top20	40.000	66.667	0.000	0.000***	40.000	50.000	0.001***
ΔSSB_Total	0.000	0.000	0.000	0.028**	0.000	0.000	0.013**
Equ	17.715	24.870	9.110	0.000***	12.500	28.445	0.000***
TA (Mil. USD)	1,365.000	1.235.000	1,760.000	'0.087*	4,846.000	383.400	0.000***
Liq	23.900	18.310	33.010	0.000***	21.320	27.850	0.004***
Inflation	2.618	2.248	3.288	0.000***	2.618	2.618	0.492
GDPCAP	13,710.520	20,496.910	3,884.220	0.000***	11,126.520	15,452.230	0.380
EFI	66.440	71.200	57.210	0.000***	64.732	69.700	0.000***

Notes: This table reports the results of difference tests between subsamples for the regarded dependent and independent variables in this study. We use the Mann-Whitney U-Test to do the difference tests in which the *p*-values are reported in the table. We built subsamples according to country focus (GCC vs. non-GCC) and to bank size focus (large vs. small). Our Chi-square tests confirm the independence of these subgroups, so that we can exclude biases resulting from relationships between the criteria of bank size and of country focus.

Variable definitions: PLSR = profit and loss sharing ratio in percent; LLR = loan loss reserves to gross loans; LLP = loan loss provisions to gross loans; ROA = return on average assets; SSB_Size = amount of SSB members; SSB_Top20 = percentage of SSB members with top twenty rankings (see Ünal 2011); ΔSSB_Total = dummy variable indicating one if the SSB composition in total changed annually and zero otherwise; Equ = equity to total assets; TA = total assets in Mil. USD; Liq = liquidity to total assets; Inflation = annual percentage change of inflation; GDP/CAP = gross domestic product per capital; EFI = Heritage Foundation/Wall Street Journal economic freedom index.

***, ** and * indicate significance respectively at the 1%, 5% and 10% levels.

Table 7: Regression results from estimates with the total sample of Islamic banks over the period 2000-2010.

Dependent variables:	LLR	LLR	LLR	LLP	LLP	LLP
	(1)	(2)	(3)	(4)	(5)	(6)
Bank individual SSB variables						
Lagged dependent	1.391***	1.536***	1.335***	0.501***	0.497***	0.624***
	(0.024)	(0.112)	(0.136)	(0.020)	(0.030)	(0.027)
SSB_Size (-1)	-7.641***	-1.883**		4.361***	4.139***	
	(0.219)	(0.743)		(0.470)	(0.658)	
SSB_Size (-2)			3.238***			1.373**
			(0.463)			(0.524)
SSB_Top20 (-1)	-0.232***	0.045**		0.047***	0.114***	
	(0.008)	(0.022)		(0.017)	(0.030)	
SSB_Top20 (-2)			-0.010			0.225***
			(0.047)			(0.028)
ΔSSB_Total (-1)	-1.012***	-1.823***		-1.083***	-2.846***	
	(0.153)	(0.309)		(0.159)	(0.335)	
ΔSSB_Total (-2)			1.804***			0.372
			(0.410)			(0.329)
Bank individual variables						
Equ	-0.684***	-0.382***	-0.596***	0.329***	0.332***	0.350***
	(0.023)	(0.079)	(0.059)	(0.035)	(0.035)	(0.015)
ln(TA)	0.975***	-0.203	-0.446**	-0.230	0.166	0.187
	(0.173)	(0.252)	(0.207)	(0.196)	(0.284)	(0.240)
Liq	-0.203***	-0.117***	-0.086***	0.009	0.016	-0.017
	(0.011)	(0.019)	(0.011)	(0.011)	(0.012)	(0.014)
Macro variables						
Inflation	-0.458***	-0.332***	-0.422***	0.384***	0.367***	0.102***
	(0.013)	(0.061)	(0.049)	(0.039)	(0.053)	(0.018)
GDPCAP	<0.000**	<0.000**	<0.000**	<0.000	<0.000	<0.001**
	(<0.000)	(<0.000)	(<0.000)	(<0.000)	(<0.000)	(<0.000)
EFI	0.094***	0.208**	0.538***	1.397***	1.083***	0.041
	(0.030)	(0.131)	(0.047)	(0.108)	(0.151)	(0.060)
No. of obs.	178	133	136	115	89	91
AR1	0.002	0.007	0.038	0.000	0.000	0.000
AR2	0.000	0.000	0.003	0.000	0.000	0.001
Sargan test	0.447	0.431	0.365	0.625	0.497	0.368

Notes: This table presents results from dynamic panel GMM estimation with predetermined and lagged endogenous variables in first differences (see Arellano and Bond (1991), Blundell and Bond (1998)) for our empirical model (1) described in Section 3.3. The table reports also the *p*-values for the tests of first- (AR1) and second- (AR2) order autocorrelation as well as for the test of over-identifying restrictions (Sargan test). To achieve robust results, we test for alternative bank-risk (LLR, LLP) variables. Specifications (1) and (4) are estimated with the second lag of the SSB composition variables as instruments. Specifications (2) and (5) are estimated with the second and the third lag of the SSB composition variables as instruments. Specifications (3) and (6) are estimated with the third lag of the SSB composition variables as instruments.

Variable definitions: LLR = loan loss reserves to gross loans; LLP = loan loss provisions to gross loans; ROA = return on average assets; SSB_Size = amount of SSB members; SSB_Top20 = percentage of SSB members with top twenty rankings (see Ünal 2011); ΔSSB_Total = dummy variable indicating one if the SSB composition in total changed annually and zero otherwise; Equ = equity to total assets; ln(TA) = natural logarithm of total assets in USD; Liq = liquidity to total assets; Inflation = annual percentage change of inflation; GDP/CAP = gross domestic product per capital; EFI = Heritage Foundation/Wall Street Journal economic freedom index.

***, ** and * indicate significance respectively at the 1%, 5% and 10% levels. Standard errors are in parentheses.

Table 8: Regression results of subsamples with country focus (GCC vs. non-GCC) over the period 2000-2010.

	GCC			*Non-GCC*		
Dependent variables:	LLR	LLR	LLR	LLR	LLR	LLR
	(1)	(2)	(3)	(4)	(5)	(6)
Bank individual SSB variables						
Lagged dependent	0.881***	1.250***	1.125***	0.242	0.335***	0.281
	(0.188)	(0.199)	(0.153)	(0.157)	(0.101)	(0.589)
SSB_Size (-1)	1.844	0.299		-1.680*	-4.849**	
	(1.511)	(1.018)		(0.951)	(2.116)	
SSB_Size (-2)			3.727*			1.843
			(1.995)			(7.489)
SSB_Top20 (-1)	0.062*	0.072**		0.031	-0.806**	
	(0.034)	(0.032)		(0.100)	(0.324)	
SSB_Top20 (-2)			-0.105			-0.386
			(0.073)			(0.703)
ΔSSB_Total (-1)	-4.578**	-1.305		-2.220***	-3.295***	
	(1.988)	(1.746)		(0.337)	(0.999)	
ΔSSB_Total (-2)			0.293			-0.671
			(1.210)			(2.926)
Bank individual variables						
Equ	-0.505***	-0.287*	-0.328*	-0.015	-0.031	-0.033
	(0.125)	(0.155)	(0.182)	(0.094)	(0.274)	(0.106)
ln(TA)	1.915	1.057	2.917*	1.340**	0.001	-1.474
	(2.323)	(1.780)	(1.690)	(0.609)	(0.708)	(4.622)
Liq	-0.309***	-0.044***	-0.230**	0.055	0.259***	0.094
	(0.105)	(0.094)	(0.094)	(0.037)	(0.090)	(0.094)
Macro variables						
Inflation	-0.101	-0.220*	-0.043	0.034	0.002	-0.288
	(0.154)	(0.119)	(0.125)	(0.028)	(0.030)	(0.581)
GDPCAP	<0.000	<0.001	<0.000*	<0.000	0.003***	0.001
	(<0.000)	(<0.000)	(<0.000)	(<0.000)	(0.001)	(0.004)
EFI	0.574**	-0.184	0.107	0.195***	-0.075	0.479
	(0.270)	(0.204)	(0.419)	(0.070)	(0.070)	(0.611)
No. of obs.	98	75	76	74	54	57
AR1	0.863	0.120	0.190	0.051	0.014	0.419
AR2	0.076	0.000	0.015	0.057	0.014	0.351
Sargan test	0.394	0.749	0.336	0.443	0.260	0.522

Notes: This table reports results from dynamic panel GMM estimation with predetermined and lagged endogenous variables in first differences (see Arellano and Bond (1991), Blundell and Bond (1998)) for our empirical model (1) described in Section 3.3. The table reports also the *p*-values for the tests of first- (AR1) and second- (AR2) order autocorrelation as well as for the test of over-identifying restrictions (Sargan test). Due to low amount of observations, we use only our primary bank-risk variable LLR. Specifications (1) and (4) are estimated with the second lag of the SSB composition variables as instruments. Specifications (2) and (5) are estimated with the second and the third lag of the SSB composition variables as instruments. Specifications (3) and (6) are estimated with the third lag of the SSB composition variables as instruments.

Variable definitions: LLR = loan loss reserves to gross loans; LLP = loan loss provisions to gross loans; ROA = return on average assets; SSB_Size = amount of SSB members; SSB_Top20 = percentage of SSB members with top twenty rankings (see Ünal 2011); ΔSSB_Total = dummy variable indicating one if the SSB composition in total changed annually and zero otherwise; Equ = equity to total assets; ln(TA) = natural logarithm of total assets in USD; Liq = liquidity to total assets; Inflation = annual percentage change of inflation; GDP/CAP = gross domestic product per capital; EFI = Heritage Foundation/Wall Street Journal economic freedom index.

***, ** and * indicate significance respectively at the 1%, 5% and 10% levels. Standard errors are in parentheses.

Table 9: Regression results of subsamples with bank size focus over the period 2000-2010.

	Large			*Small*		
Dependent variables:	LLR	LLR	LLR	LLR	LLR	LLR
	(1)	(2)	(3)	(4)	(5)	(6)
Bank individual SSB variables						
Lagged dependent	0.099	0.215**	0.128	1.854***	1.647**	1.668***
	(0.063)	(0.084)	(0.211)	(0.143)	(0.659)	(0.288)
SSB_Size (-1)	-0.505	-0.263		-6.428**	-0.223	
	(0.612)	(0.395)		(2.682)	(3.882)	
SSB_Size (-2)			1.538			6.168**
			(1.829)			(2.890)
SSB_Top20 (-1)	0.056	0.017		-0.315***	0.381	
	(0.037)	(0.031)		(0.092)	(0.349)	
SSB_Top20 (-2)			0.058			0.112
			(0.088)			(0.108)
ΔSSB_Total (-1)	-2.178***	-1.211*		-5.133***	-0.228	
	(0.431)	(0.744)		(1.071)	(4.098)	
ΔSSB_Total (-2)			-2.497**			0.248
			(1.243)			(0.822)
Bank individual variables						
Equ	0.362***	0.158***	0.283***	-0.447***	-0.278	0.094
	(0.079)	(0.033)	(0.090)	(0.071)	(0.403)	(0.130)
ln(TA)	0.336	'-0.104	0.201	-7.492***	-4.306***	2.837*
	(0.723)	(0.948)	(1.105)	(0.987)	(0.737)	(1.514)
Liq	0.120***	0.116***	0.144***	-0.427***	-0.022	-0.177***
	(0.018)	(0.037)	(0.031)	(0.036)	(0.208)	(0.053)
Macro variables						
Inflation	0.042	0.055	0.083	0.208***	0.231	0.047
	(0.058)	(0.115)	(0.268)	(0.029)	(0.206)	(0.097)
GDPCAP	<0.000	<0.000	<0.000	0.001	0.000	0.000
	(<0.000)	(<0.000)	(<0.000)	(0.001)	(0.001)	(0.000)
EFI	0.515**	0.308***	0.332	0.094	-0.298	-0.483
	(0.221)	(0.111)	(0.328)	(0.081)	(0.703)	(0.307)
No. of obs.	99	73	75	73	56	58
AR1	0.018	0.132	0.082	0.002	0.138	0.123
AR2	0.031	0.024	0.005	0.016	0.144	0.092
Sargan test	0.442	0.240	0.286	0.578	0.386	0.342

Notes: This table reports results from dynamic panel GMM estimation with predetermined and lagged endogenous variables in first differences (see Arellano and Bond (1991), Blundell and Bond (1998)) for our empirical model (1) described in Section 3.3. The table reports also the *p*-values for the tests of first- (AR1) and second- (AR2) order autocorrelation as well as for the test of over-identifying restrictions (Sargan test). Due to low amount of observations, we use only our primary bank-risk variable LLR. Specifications (1) and (4) are estimated with the second lag of the SSB composition variables as instruments. Specifications (2) and (5) are estimated with the second and the third lag of the SSB composition variables as instruments. Specifications (3) and (6) are estimated with the third lag of the SSB composition variables as instruments.

Variable definitions: LLR = loan loss reserves to gross loans; LLP = loan loss provisions to gross loans; ROA = return on average assets; SSB_Size = amount of SSB members; SSB_Top20 = percentage of SSB members with top twenty rankings (see Ünal 2011); ΔSSB_Total = dummy variable indicating one if the SSB composition in total changed annually and zero otherwise; Equ = equity to total assets; ln(TA) = natural logarithm of total assets in USD; Liq = liquidity to total assets; Inflation = annual percentage change of inflation; GDP/CAP = gross domestic product per capital; EFI = Heritage Foundation/Wall Street Journal economic freedom index.

***, ** and * indicate significance respectively at the 1%, 5% and 10% levels. Standard errors are in parentheses.

Table 10: Regression results of reverse causality analysis over the period 2000-2010.

Dependent variable:	SSB_Size		SSB_Top20		ΔSSB_Total	
	(1)	(2)	(3)	(4)	(5)	(6)
Bank individual SSB variables						
Lagged dependent	0.084**	0.127***	-0.206***	-0.040**	0.579***	0.604***
	(0.037)	(0.035)	(0.027)	(0.016)	(0.184)	(0.187)
LLR(-1)	0.001		-0.201***		-0.002	
	(0.001)		(0.024)		(0.009)	
LLR(-2)		0.004		0.024		0.003
		(0.005)		(0.063)		(0.009)
ROA(-1)	0.001		-0.010**		-0.016	
	(0.002)		(0.004)		(0.014)	
ROA(-2)		0.006		-0.003		-0.006
		(0.004)		(0.010)		(0.012)
Bank individual variables						
Equ	-0.002*	0.000	-0.117***	-0.043	0.005	0.003
	(0.001)	(0.003)	(0.019)	(0.035)	(0.005)	(0.005)
ln(TA)	-0.039***	-0.119***	0.016	-0.561	0.144***	0.122**
	(0.014)	(0.045)	(0.239)	(0.515)	(0.056)	(0.058)
Liq	0.004**	0.007***	-0.064***	-0.034***	0.005	0.005
	(0.002)	(0.001)	(0.012)	(0.009)	(0.005)	(0.005)
Macro variables						
Inflation	0.026***	0.022***	-0.184**	-0.034***	-0.062**	-0.069***
	(0.006)	(0.006)	(0.092)	(0.009)	(0.025)	(0.025)
GDPCAP	<0.000***	<0.000	<0.000***	0.001***	<0.000	<0.000
	(<0.000)	(<0.000)	(<0.000)	(<0.000)	(<0.000)	(<0.000)
EFI	-0.001	-0.001	0.258***	-0.265***	-0.034**	-0.030*
	(0.005)	(0.007)	(0.086)	(0.064)	(0.017)	(0.017)
No. of obs.	225	171	223	169	309	297
Sargan test	0.492	0.751	0.665	0.771		
AR1	0.000	0.000	0.462	0.004		
AR2	0.000	0.000	0.330	0.002		
Mc Fadden R²					0.114	0.113

Notes: This table reports results from dynamic panel GMM estimation with predetermined and lagged endogenous variables in first differences (see Arellano and Bond (1991), Blundell and Bond (1998)) for our empirical model (2) described in Section 3.3 for the specifications (1)-(4). A Probit-Model is used for the specifications (5) and (6) due to the dummy variable as dependent variable. The table reports also the *p*-values for the tests of first- (AR1) and second- (AR2) order autocorrelation as well as for the test of over-identifying restrictions (Sargan test). For brevity, we use only our primary bank-risk variable LLR, as there are similar results with the alternative bank-risk proxy LLP. Specifications (1) and (3) are estimated with the second lag of the SSB composition variables as instruments. Specifications (2) and (4) are estimated with the third lag of the SSB composition variables as instruments.

Variable definitions: LLR = loan loss reserves to gross loans; LLP = loan loss provisions to gross loans; ROA = return on average assets; SSB_Size = amount of SSB members; SSB_Top20 = percentage of SSB members with top twenty rankings (see Ünal 2011); ΔSSB_Total = dummy variable indicating one if the SSB composition in total changed annually and zero otherwise; Equ = equity to total assets; ln(TA) = natural logarithm of total assets in USD; Liq = liquidity to total assets; Inflation = annual percentage change of inflation; GDP/CAP = gross domestic product per capital; EFI = Heritage Foundation/Wall Street Journal economic freedom index.

***, ** and * indicate significance respectively at the 1%, 5% and 10% levels. Standard errors are in parentheses.

Kapitel V

Alman, Mahir

Shari'ah-compliant Private Equity Provider: Theory and Evidence

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Shari'ah-compliant Private Equity Providers: Theory and Evidence

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Abstract

Shari'ah-compliant private equity providers are subject to restrictions concerning the contractual relationships with their portfolio companies. According to this, they have limited instruments to overcome or to reduce agency and information problems which are especially relevant for private equity investments. Using survey-based data among *Shari'ah*-compliant private equity providers that are headquartered mainly in the Middle East and Northern Africa, we investigate how the contractual restrictions set by the *Shari'ah* influence portfolio investment allocation and the preference towards staged financing and syndication. We find that independent of size, shareholding preference and experience of *Shari'ah*-compliant private equity providers, specialization dominates the portfolio investment allocation. In addition, our analyses suggest strong and robust empirical evidence of a conservative investment behavior on different levels (e.g. financing stage, country, and branch) in the portfolio allocation. We find weak evidence that staged financing and syndication have specific importance among the financial contracting characteristics. The results implicate that the high degree of specialization and conservative portfolio allocation results from a trade-off to the contractual restrictions set by the *Shari'ah*. The concentration risk in the portfolio is decreased through syndication and local network benefits.

Key Words: Islamic Finance, Risk-Management, Private Equity Relationships, Portfolio Characteristics, Financial Contract Design

JEL classification: G32, G24, K12, Z12

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1. Introduction

Shari'ah-compliant private equity providers do not have the same instruments of financial contract design to overcome or to reduce agency and information problems (see e.g. Jensen and Meckling 1976, Aghion and Bolton 1992) due to restrictions set by the *Shari'ah*. Because of specific legal requirements set by the *Shari'ah* regarding any transaction and cooperation, an efficient allocation of risk and return characteristics in a *Shari'ah*-compliant financial contract differ from efficient contracts that underlie the laws of Western industrial countries (referred to as Western in the following). In this study, we investigate how the specific legal requirements of the *Shari'ah* affect the strategy and allocation of private equity providers' portfolio investments as well as the contractual agreements underlying the cooperation. Within the framework of the *Shari'ah,* the business models of *Shari'ah*-compliant private equity providers can implicate specific risk management strategies which have an effect on their cooperation with portfolio companies. Thus, we analyze how *Shari'ah*-compliant contract design is related to the degree of specialization or diversification in the portfolio as well as to the role of staged financing and syndication. For this research approach, we use our survey-based database which we generated from *Shari'ah*-compliant private equity firms as addresses.

Shari'ah-compliant private equity providers underlie the fundamental principles of the *Shari'ah* (Islamic law) which encompass all business activities, financial contracts, and transactions. The *Shari'ah,* the unique legislation for Muslims, consists of primary sources (*Quran* and *Hadith* (*Sunna*)) and secondary sources (*Ijma* and *Qiyas*) which prohibit interest, gambling, and speculation in terms of *Riba*, *Gharar,* and *Maysir*. Further, the *Shari'ah* requires financial contracts based on profit and loss sharing (equity-based) and which are backed by a real asset. Assets involved in sectors like defense or entertainment or in companies that do not

fulfill additional capital structure criteria are also forbidden (see Figure 1 in the appendix, Quran: 2:275-2:280, Lewis and Algaoud 2001, and Iqbal and Mirakhor 2007).

Previous studies with the research focus on *Shari'ah*-compliant private equity are mostly based on theoretical analyzes or on case studies, addressing specifically the topic of typical *Shari'ah*-compliant contractual and financing characteristics as well as addressing the question of risk-management strategies for financial intermediaries (see Akkizidis and Khandelwal 2007, Ahmed 2004, Ali 2005, Archer and Karim 2007, Rashid 2005, Durrani and Boocock 2006, Sundararajan 2007). In the current study, we shed light on the influence that *Shari'ah*-compliant financial contracting has on the portfolio investment allocation and on regulations of contract terms, such as staged financing and syndication. The empirical evidence is based on survey data which was sent to a total of 220 *Shari'ah*-compliant private equity providers in 19 countries, distributed mostly in the Middle East and Northern Africa (MENA). Our results reveal strong evidence for our theoretical predictions. We find that independent of size, shareholding preference as well as experience of *Shari'ah*-compliant private equity providers, specialization dominates the portfolio investment allocation. Moreover, the results indicate the expected conservative investment behavior on different levels (e.g. financing stage, country, and branch) of the portfolio allocation. This finding is also very robust when controlling for size, shareholder types and private equity providers' experience. However, we find weak evidence that staged financing and syndication play a specific role among the characteristics of financial contracting. This is also true for syndication motives, where the results suggest weak support for the specific importance of risk-sharing and of early stage financing. The high degree of specialization in minor risk investments reflects a trade-off to the contractual restrictions by the *Shari'ah* to minimize agency costs.

The remainder of the paper is organized as follows: Section 2 presents the review of the related literature on financial intermediation and financial risks as well as derives the hypotheses examined in this study. In Section 3, we describe our dataset and the empirical methodology, before discussing the results of the survey. Finally, Section 4 concludes our paper.

2. Related Literature and Development of Hypotheses

Financial intermediaries are able to overcome or reduce agency and information problems in transactions or cooperations. As a consequence of these conflicts between transaction or cooperation partners, resulting from moral hazard and asymmetric information, intermediaries have to fulfill transformation functions in order to achieve incentive-efficient capital allocations in a financial system. Within the framework of our study, we restrict our analysis to financial intermediaries in a narrow sense, covering banks, private equity providers, and insurance companies, for example (see Jensen and Meckling 1976, Leland and Pyle 1977, Diamond 1984, Aghion and Bolton 1992). Early stage and expansion financings are more challenging for financial intermediaries because of their higher degrees of asymmetric information and moral hazard. These problems result primarily from missing collaterals and missing tracking records, so that intermediaries have difficulties in judging the quality of the management and the risk of the investment project, especially in the case of small and innovative companies. Instruments used to overcome and reduce agency and information problems are screening, due diligence and signaling *ex ante* of the transaction, or cooperation as well as the creating of an incentive-compatible contract design supported by bonding and monitoring mechanisms in the post-investment phase (see Oehler 2005, Oehler and Unser 2002, Berger and Udell 1998, Cassar 2004). According to Gompers (1995), the following three control mechanisms are typical for managing agency risks in early stage and

expansion financings: 1) the use of convertible securities, 2) syndication of investment, and 3) staging of capital infusions. The additional challenge for *Shari'ah*-compliant private equity providers results from a limited number of permitted instruments for overcoming or reducing moral hazard and asymmetric information problems. As early stage and expansion financings are very risky in nature due to their innovative character and the requirement of company individual investments (sunk costs), intermediaries need special knowledge to rate the risk and return perspectives of the investment project. Thus, the existence of private equity providers results from advantages in specialization and in coordination, leading to transactions costs benefits. A further explanation for the existence of private equity providers is the possibility to structure a diversified portfolio, in which the risk and return profile can be chosen to the benefit of private equity providers. These explanations for its existence play a decisive role in the screening process *ex ante* of the transaction or cooperation as well as when applying value added and monitoring instruments in the post-investment phase (see Hartmann-Wendels 1987, Chan 1983, Sahlman 1990, Lerner 1995, Kaplan and Strömberg 2003, Hellmann and Puri 2002).

Private equity financings usually underlie detailed contracts regarding the relationship between investors, private equity providers, and portfolio firms. From the perspective of agency theory, the contract design plays an important role regarding moral hazard and asymmetric information. Conflicts of interest between the principal and the agency are solved by choosing financial instruments, agreeing on risk and return as well as on covenants in order to achieve an efficient allocation between the transaction or cooperation partners (see Gompers and Lerner 1996). As principal-agency problems cannot be solved or reduced without some costs, an efficient allocation is achieved when agency costs are minimized respectively in case of minimized control through capital providers. Alternatively, the aim of financial contract design is to find a pareto-efficient solution, in which neither the capital

provider nor the capital receiver can improve without making the other worse. Under these imperfect market conditions, financial instruments and their risk and return characteristics influence the capital structure decisions of firms, so that the irrelevance theorem of Modigliani and Miller (1958) and, consequently, the separation theorem are not valid (see Daniel and Titman 1995).

Market imperfections between capital providers and capital receivers can be distinguished according to endogenous financial risks, covering the risk of information, delegation, and concernment (see Oehler 2005, Oehler and Unser 2002). In early stage and expansion financings, market imperfections are typically solved or reduced with mezzanine instruments. These incentive-compatible instruments between private equity providers and portfolio companies include numerous control and management rights (staged financing, supermajority rules, preferred equity, budget restrictions, etc.; see e.g. Admati and Pfleiderer 1994, Gompers 1995). Thus, mezzanine financings make a state-dependent and efficient distribution of risk and return possible, leading to optimal capital structure. Hence, an efficient allocation of mezzanine financings is achieved over a dynamic capital structure policy which contributes to overcome or reduce information and delegation risks at the same time without causing own risks. Further advantages include improvements in capitalization and in anti-dilution of the portfolio companies' shareholders (see Aghion and Bolton 1992, Berglöf 1994, Hellmann 1998, Schmidt 2003, Casamatta 2003, Hartmann-Wendels 2005).

Due to the contractual restrictions set by the *Shari'ah*, the compliant private equity providers do not have the same possibilities for designing financial contracts with their portfolio companies to overcome or reduce information and agency problems. Influences of the legal and regulatory framework on the relationship between contracting parties has been examined before, but without regard to the institutional effects of the *Shari'ah* (see LaPorta et al. 1998, 2000, Lerner and Schoar 2005, Qian and Strahan 2007, Bottazzi et al. 2009,

Demirgüc-Kunt et al. 2004). *Shari'ah*-compliant restrictions refer especially to mezzanine or debt financings, such as convertible securities and options dealing, which are frequently used at early stage and expansion financings in Anglo-Saxon countries (see Kaplan and Strömberg 2003, Mirakhor and Zaidi 2007, Lewis and Algaoud 2001, Usmani 2002, Iqbal and Molyneux 2005, Tamer 2005). Furthermore, *Shari'ah* only allows inside collateral as a form of security for capital providers. Consequently, the importance of the remaining instruments in solving information and agency problems on the portfolio level and on the contractual level should increase, including specialization (value added relationships), syndication, and especially staging. However, these remaining instruments may be associated with higher transactions costs which cause additional risks (see Durrani and Boocock 2006, Dar 2007, Visser 2009, Sahlman 1990, Gompers 1995, Kaplan and Strömberg 2003, Tian 2012, Lerner 1994). The restrictions in financial contract design may also lead to higher standardized contractual relationships which lower transactions costs (see Smith 2008). Beside *Mudarabah* contracts, *Shari'ah*-compliant financial instruments have to fulfill symmetric conditions regarding risk-sharing in the sense that transaction or cooperation partners have management, information, and control rights in proportion to their investment of total capital and they are also liable in this proportion. Fulfilling symmetric conditions avoids efficient incentive-compatible contracts between cooperation or transaction partners (see Sahlman 1988). Thus, the *Shari'ah*-compliant framework requires that private equity providers be very strategic in performing intensive pre-investment screenings of potential portfolio companies, to avoid in such the adverse selection associated with a dual financial system (see Van Greuning and Iqbal 2007, Akacem 2008, Gassner and Wackerbeck 2010). Moreover, in doing so, they can meet the need of stronger monitoring and management efforts in the post-investment phase, particularly as lead investors. The strategic business orientation in terms of specialization or diversification on the level of financing stage, branch, country, or portfolio company size is necessary to achieve higher trade-offs over advantages in coordination (synergy effects), in

transactions costs, and in networking, thus solving or reducing the increasing financial risks under the *Shari'ah*.

In the case of *Shari'ah*-compliant private equity providers, we expect at first a specialized business strategy regarding the business start of the portfolio companies, financing stage, country, branch as well as on the portfolio level. We assume, due to the contractual restrictions set by the *Shari'ah*, that a very active role in terms of management and value addition is required by the compliant private equity providers to overcome or reduce information and agency problems. In literature there is evidence that highly specialization promises to be able to fulfill this active role successfully in portfolio firms (see Gompers et al. 2009, Cressy et al. 2007). In the framework of the *Shari'ah*, the contractual restrictions make it difficult and costly to enforce and use control and information rights. Thus, specialization of *Shari'ah*-compliant private equity providers should be even more beneficial under these conditions, due to the reason that it decreases the dependence from using as well as enforcing costly instruments to minimize agency risks and, therefore, benefit from value added provisions towards portfolio companies (see Cressy et al. 2007, Aghion and Tirole 1997, Cestone 2001, Smith 2008). This leads to our first hypothesis:

Hypothesis 1: *Shari'ah*-compliant private equity providers follow a specialized business strategy on the business start level of portfolio companies, on the level of financing stage, on the country level, on the branch level as well as on the level of the portfolio.

Specifically, in financings of companies that are in early stages or which belong to high-tech industries, the interests of transaction or cooperation partners diverge very strongly in the framework of the *Shari'ah*. Thus, we expect second that portfolio companies of *Shari'ah*-compliant private equity providers are mostly in later stages in terms of their business start and their financing stage, belong predominantly to non-high-tech branches, and are mostly based in MENA countries due to the fact that about 81% of the participants have

their headquarters there and to use in such local network advantages. Several studies have provided significant evidence that local investment behavior results from advantages associated with local networks (see Norton and Tenenbaum 1993, Lindsey 2008, Hochberg et al. 2007, Gompers et al. 2009). Thus, we examine the following hypothesis:

Hypothesis 2: The portfolio companies of *Shari'ah*-compliant private equity providers are mostly in later stages according to their business start and their financing stage, are mostly based in MENA countries, and belong predominantly to non-high-tech branches.

Third, we expect that the permitted instruments as syndication and staged financing should bear a specific importance, especially in early stage financings and regarding risk-sharing motives. However, these instruments may cause their own risks from which follows potentially higher transaction costs than under western possibilities of financial contracting (see Sahlman 1990, Gompers 1995, Kaplan and Strömberg 2004, Tian 2012, Lerner 1994). As we assume a conservative investment behavior on different levels (age, financial stage, country, branch) according to Hypothesis 2, the risks which are associated with the use of syndication and staged financing should have minor relevance. In dependence of the shareholding structure, further motives for syndication, including improved deal selection or monitoring as well as adding value, may be associated with free-riding problems and additional coordination costs (see e.g. Carletti et al. 2007), which is why we assume that these are only of minor importance. So, our last hypothesis that we investigate in this study is as in the following:

Hypothesis 3: Staged financing and syndication play a specific role in the financial contracts between *Shari'ah*-compliant private equity providers and their portfolio companies. The importance of syndication increases with risk-sharing and in early stage financings.

3. Empirical Analysis

3.1. Dataset and Methodology

Our primary source of data is a survey that we sent to 220 private equity firms between November 2010 and February 2012 based in the following countries: Bahrain, Canada, Egypt, England, France, Indonesia, Jordan, Kuwait, Lebanon, Malaysia, Oman, Qatar, Saudi Arabia, Switzerland, Turkey, Tunisia, UAE, and USA. We received 49 responses with different degrees of completeness, corresponding to an overall response rate of almost 22.3%. Table 1 presents the amount of responses across countries as far as they are not anonymous.

After a pretest to check if the questionnaire is comprehensible and unambiguous, we sent the surveys to private equity firms which fulfill the following four criteria: (i) They were full-fledged *Shari'ah*-compliant, (ii) they were actively engaged in private equity, (iii) they were still operating at the time of the survey, and (iv) they were based in a country with a dual financial system in which the *Shari'ah*-compliant and the Western financial system exist in parallel. We exclude private equity firms with Islamic business departments or with *Shari'ah*-compliant and Non-*Shari'ah*-compliant portfolios in parallel as well as Sovereign Wealth Funds. As *Shari'ah*-compliant private equity firms are characterized by a low unionization in associations, it is very difficult to gather information on the population. Thus, we have to determine the addressees for the survey from different sources, including literature (see Jaffer 2004, Rehman 2010), data providers (see Zawya, EMPEA, Dubaibeat, VC Directory, Islamic VC, Failaka, Gulf Base, Thomson One, ISI Emerging Markets, Bankscope, The Banker), associations (see e.g. Gulf Venture Capital Association (GVCA), MENA Private Equity Association) as well as financial service providers (see e.g. KPMG, Rothschild). As a response quote of 15-20% is typically expected in the literature, we took different methods to ensure that we received a sufficient sample amount: (i) We sent the survey to the management

at their personal addresses, (ii) We included a prepaid envelope and gave respondents the opportunity to participate anonymously, (iii) We followed-up using direct phone calls as well as by email. The last method was associated with difficulties, particularly for addresses in the Middle East and Northern Africa (MENA) because of language barriers and due to undeliverable emails, which were likely the result of out-of-date information on the websites of the *Shari'ah*-compliant private equity firms. We contacted the addresses by direct phone calls as well as by email to increase the response rate, but also to try to complete missing data in the surveys. Concerning this matter, we also made an attempt to collect additional data through our own research on the web pages of the *Shari'ah*-compliant private equity firms to complete and to countercheck the data we received from the participants as far as they were not anonymous. On the whole, the response rate is very satisfying, considering the difficulties mentioned above and the need of confidential data, particularly regarding private equity providers.

To assess the quality of our sample, we need information about the underlying population. However, particularly *Shari'ah*-compliant private equity firms are hardly regulated and do not need to disclose information. As we received at least 40 out of 49 responses (see Table 1) from private equity firms based in the MENA, we could compare the statistics of our sample with the annual report statistics published by the MENA Private Equity Association to check how well our data represents the population. Because the annual report data by the MENA Private Equity Association do not distinguish between *Shari'ah*-compliant and Non-*Shari'ah*-compliant private equity firms, it is questionable how well this report can serve as a benchmark to assess the quality of our sample. To our knowledge, commercially available data bases are also not able to make the distinction between these both groups of private equity firms. Therefore, it is left to future studies to assess the quality of our sample when more appropriate data bases are available.

The questions we asked in the survey are focused on key characteristics of the private equity firm, on the investments in portfolio companies and on some of their characteristics as well as on contractual agreements underlying the cooperation. For questions with scaled response options, we always use a range of six categories from 1 to 6 to avoid a midway bias and to create incentives for the participants to make an estimation or decision.

3.2. Results

To examine our first hypothesis, we first examined the degree of specialization or diversification on the level of financing stage, branch, country, target firm size as well as on the portfolio level. The respondents (addresses) had to choose between 1, i.e. highly diversified, and 6, i.e. highly specialized to characterize the strategy and allocation of the portfolio investments. While Figure 2 illustrates the frequency distribution and the median values (bold and italic), Table 2 presents the associated descriptive statistics.

Please insert Figure 2 and Table 2 about here.

As expected, the results indicate that specialization dominates on all the portfolio levels with median values of at least 4. The highest specialization is on the financing stage level and on the country level with median values of 5. From our survey, we know also the distribution characteristics in the portfolios of the individual private equity companies in terms of business start, financing stage, domicile and branch. Thus, we may find further evidence for our first hypothesis. To find out the specialization rather concentration degree within these portfolio characteristics, we use the Herfindahl-Hirshman Index (HHI) that is defined as the sum of squared shares of investments (see Gompers et al. 2009, Hopp and Rieder 2011). The HHI increases in stronger concentration with a maximum value of 100%. As presented in Table 3, the median values of the HHI values support again our first hypothesis, especially in the case of domicile, business start, and financing stage of portfolio companies.

Please insert Table 3 about here.

In the following, we do robustness checks with subsamples that we built according to size in total assets, the shareholding in portfolio companies as well as according to the experience of private equity (see Bengtsson and Sensoy 2011, Bottazzi et al. 2008, Gompers et al. 2009). In terms of size, we differentiate between small and large *Shari'ah*-compliant private equity providers based on the median size in total assets (ca. 373 million USD) as the cutoff criterion. Additionally, we distinguish between minority (≤25%), blocking minority (25-50%), and majority (>50%) shareholding counterparts. Finally, we consider a pair of subsamples with young and old private equity providers to proxy their experience. Bengtsson and Sensoy (2011) proxy experience also by number of historical investments as well as by IPO rate of previous investments. However, our survey based data do not allow regarding these two indicators of experience. Our Chi-square tests confirm the independence of these subgroups, so that we can exclude biases resulting from relationships between the size of a private equity provider, the shareholding in its portfolio companies as well as its age. After calculating the HHI concentration values for every portfolio characteristic and separately for all subgroups, we test if the groups have the same median and follow in such a comparable specialized business strategy. First, by applying the Mann-Whitney U-Test, we find no significant difference between the specialization of large and small private equity providers except in case of branch level with a weak statistical significant level of 10%. This result reveals evidence of a positive relation between size and branch diversification. Second, by applying the Kruskal-Wallis H-Test concerning to the reason that there are more than 2 subgroups with the three shareholder types, we find again no significant difference between the specialization of minority, blocking minority, and majority shareholding private equity providers. However, in line with the previous results there is at least the tendency that diversification on the branch level might be preferred in the portfolio investments. We also regard the median size in assets under management (525 million USD) as well as the median

size in average investment size (ca. 24 million USD) of the private equity providers as alternative cutoff criteria (see e.g. Humphery-Jenner 2012), leading to equivalent results compared to total assets as reported in Table 4. Therefore, for brevity, we exclude the results with the alternative cutoff criteria from our discussions. To address the question, if experience of *Shari'ah*-compliant private equity providers impacts their portfolio investment allocation, we apply the Mann-Whitney U-Test of portfolio investment differences between young and old private equity firms based on the median cutoff value of 7 years. There is no significant difference between the specialization of young and old private equity provider, except on the branch level. This result is very striking, as young private equity firms are specialized with a HHI value of 46%, while their old counterparts are diversified (HHI value of 28%) on the branch level. We would expect the other way round as more experienced (older) private equity providers should have more monitoring and value-added abilities, which is beneficial for portfolio investment specialization (see Bengtsson and Sensoy 2011, Bottazzi et al. 2008, Gompers et al. 2009). We conclude on the whole that specialization significantly dominates the portfolio investment allocation of *Shari'ah*-compliant private equity providers independent of their size, their shareholding preferences as well as their age. Thus, we find strong and robust evidence for our first hypothesis.

Please insert Table 4 about here.

Next, we examine our second hypothesis to find an answer for the direction of specialization on the level of business start, financing stage, country, and on the branch level. On every level we regard two groups as young (0-3 years) and old (>3 years), early (seed and start-up) and later (expansion, bridge, MBO/MBI, and turnaround) stage, MENA (Middle East and Northern Africa) and Non-MENA-based portfolio companies as well as high-tech and non-high-tech portfolio investments. After this splitting, we apply the Mann-Whitney U-Test to find out statistical differences between the two groups on each of the four levels. As

provided in Table 5, we completed the difference tests not only for the entire sample, but also for subsamples which were constructed under the criteria of private equity providers' size (large vs. small), their shareholding focus (minority vs. blocking minority vs. majority shareholding) as well as their age (young vs. old) to control the robustness of the results.

Please insert Table 5 about here.

Beginning with the entire sample, we observe very high differences between the median values on every portfolio characteristic level. The highest differences are between portfolio investments in young (10%) and old (90%) portfolio companies as well as between investments inside and outside MENA countries (90% vs. 10%). These observed differences are confirmed strongly by the tests with statistical significances on the 1% level. When regarding the portfolio investment behavior of large and small private equity providers, the same is true as for the entire sample. The robustness of the results derived from the entire sample is also supported when differentiating between the three shareholder types, except in the case of majority shareholders on the financing stage level. Here, we find no significant evidence that early (30%) and later (70%) stage investments differ from each other. This can be an indication that majority shareholding *Shari'ah*-compliant private equity providers tend to diversify more on the financing stage level than their counterparts with a focus on (blocking) minority shareholding. The results with the differentiation between young and old private equity providers are also in line with the entire sample. As expected by our second hypothesis, we find strong significant evidence that portfolio investments of *Shari'ah*-compliant private equity providers are specialized in later stage companies according to their business start and their financing stage, are mostly based in MENA countries and belong predominantly to non-high-tech branches. This specialized portfolio investment behavior is independent of the size, the shareholder type as well as age of *Shari'ah*-compliant private equity providers, but there is no significant difference between early and later stage (30% vs.

70%) allocations in terms of majority shareholdings. Concerning the direction of specialization, our results are robust to the alternative indicators of size in terms of assets under management as well as average investment size. The summarized results with the alternative size measures and the subsample results with young and old private equity providers are presented in Table 6.

Please insert Table 6 about here.

In the following, we test our third hypothesis to find an answer to the question whether the instruments of staged financing and syndication play a specific role for *Shari'ah*-compliant private equity providers in the contractual relationship with its portfolio companies, as the use of convertible securities are not permitted from the perspective of the *Shari'ah* and covenants can only be used restrictively to minimize agency risks and information asymmetries. The respondents had to assess typical terms of a contract and syndication motives in the range of 1, i.e. not important, and 6, i.e. very important. In Table 7, the relative and absolute frequencies as well as the median values for the contract terms and syndication motives are presented.

Please insert Table 7 about here.

Regarding first the importance of contractual characteristics, each has a median value of 5 except in the case of syndication, which has a median of 4. So far, we can indicate that staged financing and syndication are important contract terms between a *Shari'ah*-compliant private equity provider and its portfolio company, but they do not differ from other contract terms such as financial performance, corporate strategy, operative performance, or strategic performance. Syndication has even the lowest median value compared to the other contract terms. Considering the syndication motives, we observe as expected that risk-sharing and early stage financings belong to the most important reasons with a median value of 5, but improved deal selection and value addition motives have the same importance followed by

improved monitoring, additional deal flow (both with median values of 4.5), and later stage financing motives (with a median value of 3). To control for the robustness of our results, we differentiate again between subsamples of size (large vs. small), shareholding types (minority vs. blocking minority vs. majority shareholdings) as well as between subsamples of experience (young vs. old) and complete the difference tests as provided in Table 8.

Please insert Table 8 about here.

Beginning with the subsamples of size, there is no strong significant difference between the median values of large and small private equity providers which have the same values as in the entire sample. This is contrary to the median values of the subsamples differing between the shareholder types. Here, we find significant differences on at least the 10% level in all but one case. While staged financing maintains high importance in all shareholding cases, syndication is valued differently, especially between blocking minority (median of 6) and majority shareholding (median of 3) private equity providers. The benefits of syndication decrease with higher shareholding. The highest valuation of importance referring to staged financing and to syndication (both with median values of 6), also in comparison to the other contract terms, is valued by the blocking minority shareholding types. Continuing with the difference tests for syndication motives, we can indicate that except in the case of risk sharing and of later stage, large *Shari'ah*-compliant private equity providers significantly value the syndication motives higher than their small counterparts on at least the 10% level. The opposite is true for the tests between the three shareholder types, in which we do not find strong significant differences. When we compare risk-sharing and early stage financing to the other motives of syndication, it is remarkable that, on the whole, these motives achieved the highest importance valuation independent of the size and shareholder type. The importance of syndication increases in risk-sharing and in early stage financing on the same level for large and small *Shari'ah*-compliant private equity providers as well as for

(blocking) minority and majority shareholdings. Additionally, when regarding the difference tests between experienced (old) and non-experienced (young) private equity providers there is in contrast to the previous subsamples no evidence at all for a specific importance of staged financing and syndication in the financial contracts. The importance of syndication increases with risk-sharing and in early stage financings, but the relevance of these motives are not different from further ones. Thus, we find weak evidence for our third hypothesis in such that staged financing compared to syndication is valued with nearly the highest importance independent of size and shareholder type of the private equity providers. The consistent results on the high importance levels for the syndication motives of risk-sharing and of early stage financing in the different subsamples give further support for our third hypothesis. The same picture follows for the alternative size proxies, regarding assets under management and average investment size as provided in Table 9.

Please insert Table 9 about here.

3.3. Robustness

Beside constructing subsamples according to alternative size measures, the shareholding preference as well as according to the experience of *Shari'ah*-compliant private equity firms in its portfolio companies, we control the degree of specialization by also regarding the number of portfolio investments in different business starts, financings stages, geographic regions as well as branches (see e.g. Humphery-Jenner 2012). After controlling the results of the entire sample and of the subsamples referring to our three hypotheses, we find that our results are robust to the alternative indicator of specialization. For brevity, the robustness checks with the alternative proxy of specialization are unreported.

In sum, we conclude from our empirical investigations that specialization is associated with conservative portfolio investment allocation of *Shari'ah*-compliant private equity providers. The strong concentration on older, later stage, local as well as non-high-tech

portfolio companies implicate that risk-management solutions in compliance with the *Shari'ah* that allow more risky investments are hardly known and/or applied. Consistent with our theoretical predictions, the strong degree of specialization is not enough for a trade-off to the missing instruments such as mezzanine financing forms (e.g. convertible securities) to be involved in more risky investments. Beside the restrictions on financial contract design to reduce moral hazard and information asymmetry problems as well as the characteristics of *Shari'ah*-compliant private equity providers, the legal and institutional environment in terms of investor protection and contract enforcement play an important role in the willingness to fund early stage and high-tech companies (see LaPorta et al. 1997, Nofsinger and Wang 2011). As at least 81% of the survey participants are based in MENA countries, we assume that legal and institutional determinants affect also the portfolio investment allocation of *Shari'ah*-compliant private equity providers. According to the index of economic freedom by the Heritage Foundation/Wall Street Journal (see Nofsinger and Wang 2011), the MENA countries have only an overall score of 60 in a range from 0 to 100. This index includes benchmarks of economic development, such as business freedom, property rights, or fiscal freedom to approximate the legal and institutional development of a country's financial system. Thus, investor protection and contract enforcement are severe determinants of the portfolio characteristics of *Shari'ah*-compliant private equity providers in our sample. Because three-fourths of the survey participants belong predominantly to minority or blocking minority shareholding types and five-sixths of the respondents prefer to be involved in investment syndicates, we would expect a higher importance valuation of syndication (median value of 4). However, the valuations of syndication motives support our theoretical assumptions, especially in the case of risk-sharing and of early stage financings. We infer from our empirical evidence that the high degree of specialization on several levels results particularly from local network advantages, from minor risk investments as well as from syndication in order to also profit from partner skills and expertise (see also Hopp and Rieder

2011). Nevertheless, the local investment behavior results also from stronger demand of *Shari'ah*-compliant financings inside rather than outside the MENA region due to higher shares of Muslim populations in the former compared to the latter. Finally, the specialization on the branch level is also a consequence of the *Shari'ah*-compliant screening criteria (see Figure 1).

4. Conclusions

Shari'ah-compliant private equity providers underlie restrictions regarding the design of financial contracts in the relationship with its portfolio companies. Typical Western financial instruments such as convertible securities with important incentive-compatible functions to minimize agency costs are hardly available. In the literature, there is no empirical evidence regarding how these restrictions influence the portfolio investments of *Shari'ah*-compliant private equity providers and the contractual relationships to its portfolio companies. To fill this gap, we conducted a survey among *Shari'ah*-compliant private equity providers, which are based mainly in MENA countries, to shed some light on the portfolio and contract characteristics. Consistent with our theoretical predictions, we find clear empirical evidence that independent of size, shareholding preference and experience, specialization dominates the portfolio investment allocation of *Shari'ah*-compliant private equity providers. In particular, our analysis shows strongly that conservative investment behavior on different levels (e.g. stage, country, and branch) determines the portfolio allocation. An additional insight of this study is that staged financing and syndication play indeed an important role, but this is not specific compared to other usually regulated financial contracting terms. We can deduce the same for the syndication motives, where the results give weak evidence for the specific importance of risk-sharing and of early stage financing compared to other syndication motives, such as improved deal selection and monitoring or value added motives, for

example. Our results provide initial evidence that the conservative portfolio investment allocation and the high degree of concentration or specialization reflect a trade-off to the restricted contractual instruments which are allowed for *Shari'ah*-compliant private equity providers to overcome or reduce moral hazard and asymmetric information. We conclude that syndication and local network advantages allow this high degree of concentration, so that they can achieve specialization benefits. Thus, this empirical evidence implicates that, according to the restricted contractual instruments to minimize agency costs, specialization makes it possible for private equity providers to be somewhat independent from enforcing and using control and information rights and, therefore, benefit from value added provisions towards portfolio companies (see Aghion and Tirole 1997, Cestone 2001).

The resulting policy implication is that alternative financings have to be considered to encourage innovativeness and growth, as most *Shari'ah*-compliant financial instruments do not allow investments in early stage and high-tech companies. These could be supplied by a country's sovereign wealth funds as long as it operates in compliance with the *Shari'ah*. Early stage and high-tech investments, even more in the case of *Shari'ah*-compliant financings, especially need institutional support to improve advantages in coordination (synergy effects), in transactions costs, and in networking as well as to promote R&D activities and exit markets. Our results implicate also that the legal environment in terms of investor protection and contract enforcement (see LaPorta et al. 1997, Nofsinger and Wang 2011) is even more relevant in the framework of the *Shari'ah* for funding early stage and high-tech companies. Future research should investigate the question which factors determine the engagement of *Shari'ah*-compliant private equity providers in early stage and high-tech portfolio investments to achieve possible best-practice models. Another interesting research question is how the *Shari'ah*-compliant private equity financing improves efficiency in private firms in comparison to Western private equity financing (see e.g. Leslie and Oyer 2008). Finally, as

our survey data do not allow this, further analyses and tests for robustness could be done through alternative measures of the degree of specialization in the investment portfolio of a private equity provider (see e.g. Cressy et al. 2007).

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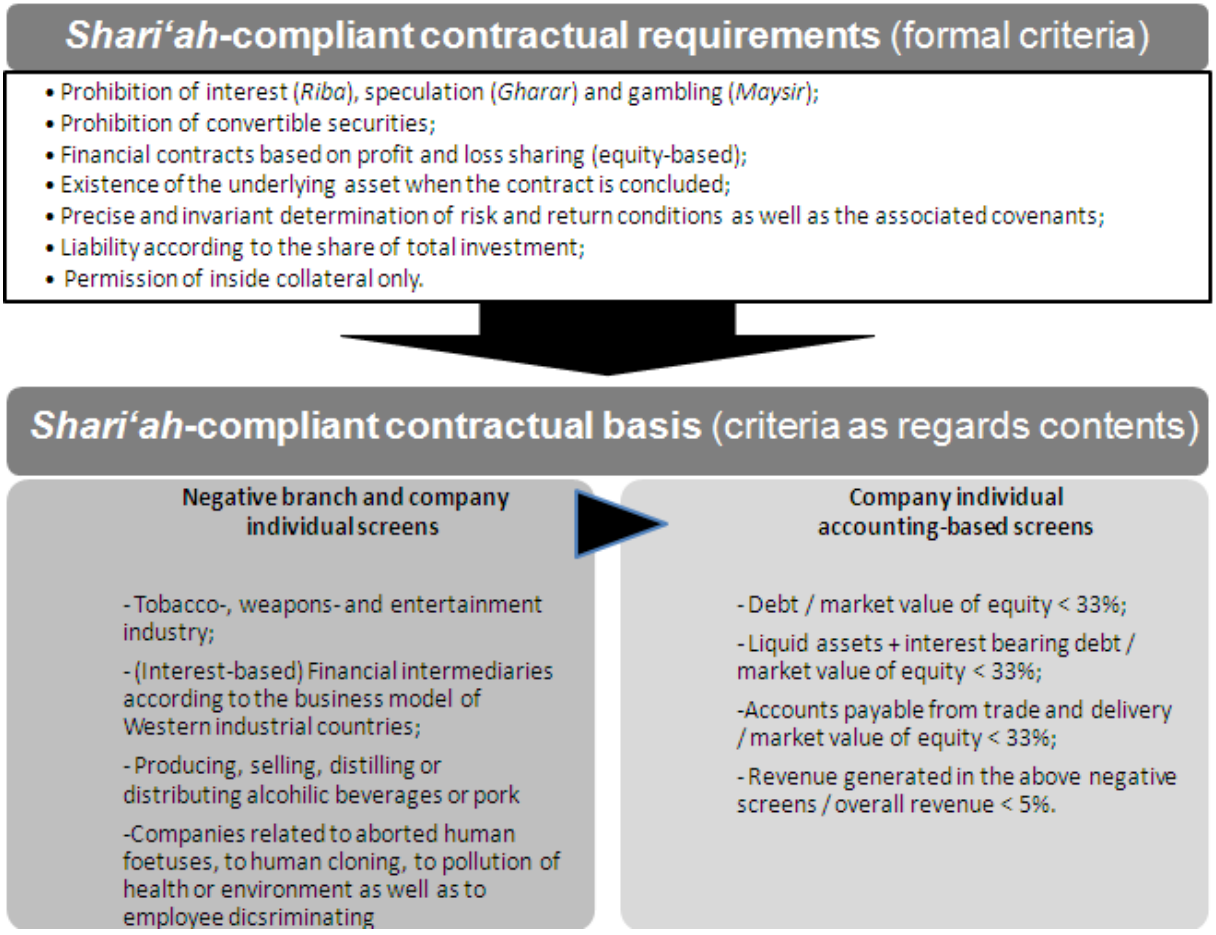
Appendix

Figure 1

***Shari'ah*–compliant financial contract based screens.**



Source: Own illustration.

Notes: Controlling for *Shari'ah*-compliance of an asset underlying a financial contract is a two-step procedure according to the disqualifying criteria in the list above. The fulfillment of the first stage in terms of contractual requirements builds the precondition for the second stage in terms of contractual basis. After the fulfillment of formal criteria on the first stage, the underlying asset of a financial contract is screened for *Shari'ah*-compliance under qualitative branch and company individual criteria as well as the compliance with leverage ratios differing in the maturity. Additionally, this step includes a criterion with a combination of qualitative and quantitative screening in which the isolated checking of an asset is left.

Table 1

Response statistics.

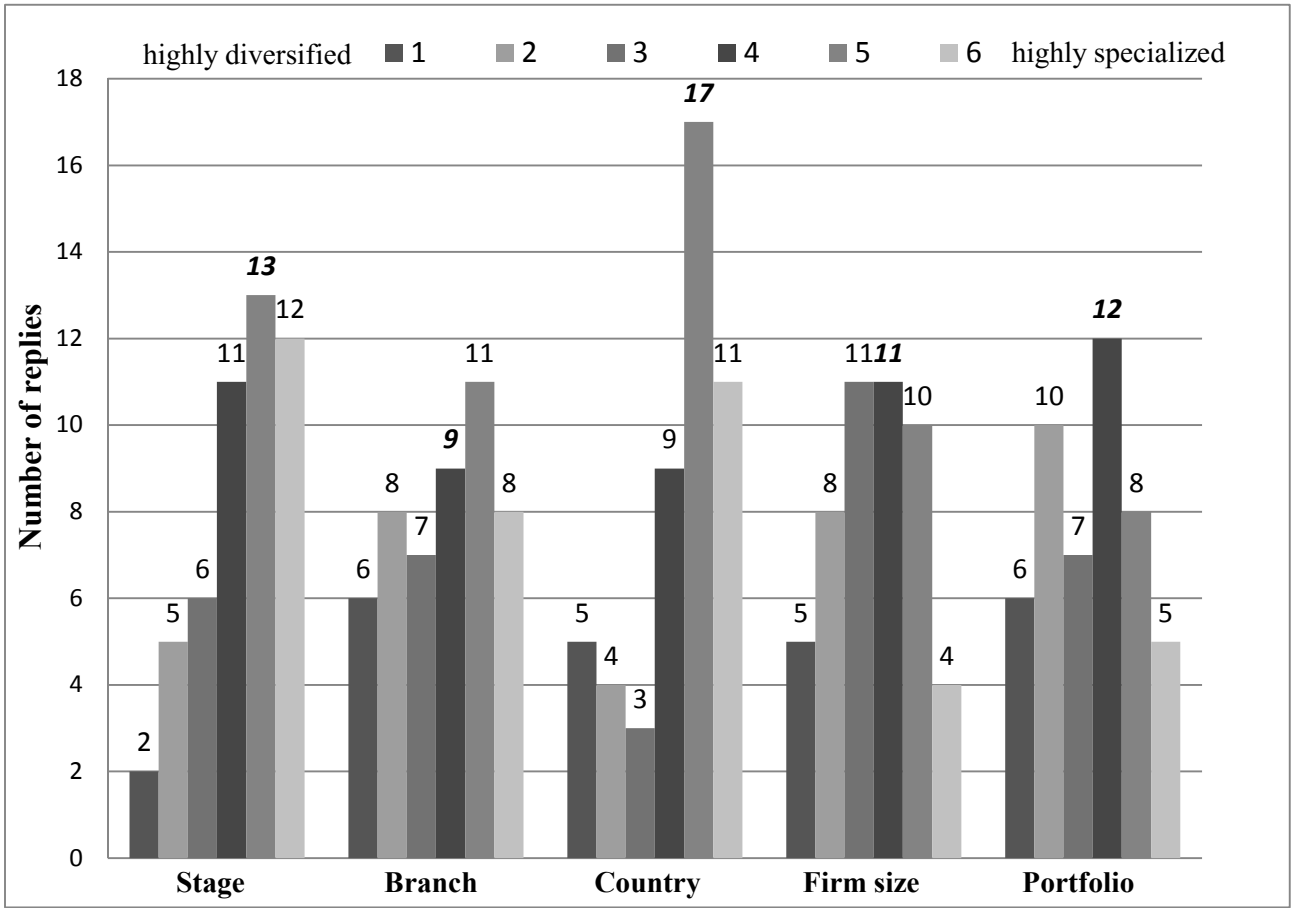
Country	*Number of responses*
GCC countries	
Bahrain	13
Kuwait	8
Qatar	3
Saudi Arabia	4
UAE	5
Oman	1
MENA countries without GCC	
Egypt	1
Jordan	3
Tunisia	1
Turkey	1
Non-MENA countries	
Canada	1
Indonesia	1
Luxembourg	1
USA	1
Anonymous	5
Total	*49*

Source: Survey-based data of *Shari'ah*-Compliant Private Equity Providers.

Notes: This table presents the country composition of the survey-based sample. We differentiate between responses received from countries of *Gulf Cooperation Council (GCC)*, *MENA (Middle East and North Africa)* excluding *GCC* and *Non-MENA*. The *Gulf Cooperation Council (GCC)* consists of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. It was founded 1981 in Abu Dhabi to cooperate in several fields as in economy, politics and culture. Concerning to the asking of confidential data especially towards private equity providers, we let them the possibility to participate anonymously to increase in such the response rate.

Figure 2

Diversification respectively specialization of portfolio investments.



Notes: This figure presents the diversification respectively specialization on the financing stage level, branch level, country level, target firm size level as well as portfolio level. For each level the addresses had to choose between 1, i.e. highly diversified, and 6, i.e. highly specialized to characterize the portfolio investment allocation. There are n = 49 responses for each of the portfolio level characteristics. Beside the frequency distribution, the median value is highlighted bold and italic.

Table 2

Descriptive statistics of portfolio investments.

Age	<1	1-2	2-3	3-4	4-5	>5
Mean	8.586	5.989	9.183	30.138	23.178	22.926
Median	0.000	0.000	0.000	20.000	20.000	0.000
Std. dev.	19.994	11.913	16.704	32.069	25.775	33.080
Min.	0.000	0.000	0.000	0.000	0.000	0.000
Max.	80.000	50.000	100.000	100.000	100.000	100.000
Obs.	49	49	49	49	49	49
Stage	Seed	Start-up	Expansion	Bridge	MBO/MBI	Turnaround
Mean	6.503	24.214	44.092	13.639	5.408	6.143
Median	0.000	10.000	40.000	0.000	0.000	0.000
Std. dev.	13.437	28.427	29.223	17.807	9.878	16.458
Min.	0.000	0.000	0.000	0.000	0.000	0.000
Max.	70.000	100.000	100.000	65.000	40.000	100.000
Obs.	49	49	49	49	49	49
Country	GCC	MENA	Europe	USA	Asia	Other
Mean	56.829	20.843	7.298	4.884	7.111	3.032
Median	65.000	10.000	0.000	0.000	0.000	0.000
Std. dev.	34.753	28.216	12.741	13.150	16.812	14.629
Min.	0.000	0.000	0.000	0.000	0.000	0.000
Max.	100.000	100.000	57.000	60.000	100.000	100.000
Obs.	49	49	49	49	49	49
Branch	Finance	Real Estate	High-tech	Manufacturing	Service	
Mean	14.324	26.523	22.588	28.292	7.388	
Median	5.000	10.000	14.500	24.500	0.000	
Std. dev.	20.480	29.427	28.145	29.318	11.030	
Min.	0.000	0.000	0.000	0.000	0.000	
Max.	100.000	100.000	100.000	100.000	40.000	
Obs.	48	48	48	48	48	

PE	PE_Age	Nr. firms	Nr. funds	Nr. branches/fund	Nr. firms with 50% investm. share
Mean	10.714	18.000	2.419	5.263	5.233
Median	7.000	10.000	1.000	3.000	4.000
Std. dev.	8.796	18.462	2.332	5.641	6.106
Min.	1.000	3.000	1.000	0.000	0.000
Max.	37.000	72.000	10.000	25.000	25.000
Obs.	49	42	43	38	43

Notes: This table presents in relation to Figure 1, the descriptive statistics regarding the portfolio investment characteristics. In the survey the participants are asked about the percentile distribution of the business start (age) of portfolio companies, its financing stage and branch as well as its domicile (country). The last section shows further characteristics of the private equity provider and the portfolio, including the number of portfolio firms (No Firms), the number of funds under management (No Funds), the number of branches per fund under management (No branches/fund) and finally the number of portfolio companies in which 50% of the total invested capital is concentrated (No firms with 50% investm. share).

Table 3

Concentration respectively specialization difference tests between subsamples over Herfindahl-Hirshman Index values.

	Total	*Large*	*Small*	**Mann-Whitney**	*Minority (≤25%)*	*Blocking minority (25-50%)*	*Majority (>50%)*	**Kruskal-Wallis**
	n=49	n=24	n=25	**U-Test**	n=21	n=15	n=13	**H-Test**
	Median	Median	Median		Median	Median	Median	
Age	50.00%	43.75%	50.00%	0.746	50.00%	45.50%	58.00%	0.882
Stage	46.00%	47.75%	42.66%	0.446	55.78%	42.00%	37.50%	0.161
Country	66.00%	57.32%	68.00%	0.213	49.12%	68.00%	74.50%	0.141
Branch	37.25%	30.75%	37.50%	0.099*	33.88%	46.00%	33.58%	0.147

Notes: This table presents median concentration values for the four portfolio characteristics, including the age of portfolio companies, the financing stage level, the domicile of portfolio companies (country) and their branch. The Herfindahl-Hirshman Index (HHI) concentration value is defined as the sum of squared shares of investments in each branch (see Gompers et al. 2009, Hopp and Rieder 2011). The HHI increases in stronger concentration respectively specialization with a maximum value of 100%. The median concentration values are listed for the total sample and for the subsamples with private equity providers' size focus and preferred shareholder type focus. For the first pair of subsamples we differentiate between large and small *Shari'ah*-compliant private equity providers based on the median size in total assets (ca. 373 million USD) as the criterion of cutoff. We also regard the median size in assets under management and the median size in average investments as alternative cutoff criteria, leading to equivalent results compared to total assets, why we exclude them from our discussions for brevity. Second, the subsamples differ between minority (≤25%), blocking minority (25-50%) and majority (>50%) shareholding counterparts. Our Chi-square tests confirm the independence of these subgroups, so that we can exclude biases resulting from relationships between the size of a private equity provider and the shareholding in its portfolio companies. After calculating the HHI concentration values for every portfolio characteristic and separately for all subgroups, we test if the groups have the same median according to the Mann-Whitney U-Test in case of 2 subsamples of size and according to the Kruskal-Wallis H-Test due to the fact of more than 2 subgroups in case of the three shareholder types. The table reports the *p*-values of the difference tests.

* represent significance at the 10 percent level.

Table 4

Concentration respectively specialization difference tests between alternative subsamples over Herfindahl-Hirshman Index values.

	Total n=49	*Large(AUM)* n=23	*Small(AUM)* n=23	**Mann-Whitney U-Test**	*Large(Inv_Size)* n=21	*Small(Inv_Size)* n=20	**Mann-Whitney U-Test**	*PE_Young* n=23	*PE_Old* n=23	**Mann-Whitney U-Test**
	Median	Median	Median		Median	Median		Median	Median	
Age	50.00%	55.78%	47.75%	0.665	42.00%	47.75%	0.609	45.50%	50.00%	0.544
Stage	46.00%	42.00%	49.75%	0.175	49.50%	42.33%	0.763	46.00%	46.08%	0.718
Country	66.00%	65.50%	68.00%	0.895	60.13%	68.00%	0.783	65.68%	70.75%	0.129
Branch	37.25%	32.00%	46.00%	0.026**	33.88%	46.00%	0.183	46.00%	27.58%	0.008***

Notes: This table presents median concentration values for the four portfolio characteristics, including the age of portfolio companies, the financing stage level, the domicile of portfolio companies (country) and their branch. The Herfindahl-Hirshman Index (HHI) concentration value is defined as the sum of squared shares of investments in each branch (see Gompers et al. 2009, Hopp and Rieder 2011). The HHI increases in stronger concentration respectively specialization with a maximum value of 100%. The median concentration values are listed for the total sample and for the subsamples with private equity providers' size focus as well as with the focus on the age of a private equity provider. For the first and second pair of subsamples we differentiate between large and small *Shari'ah*-compliant private equity providers based on the median size in assets under management *(AUM)* (525 million USD) and based on the median size in average investment size *(Inv_Size)* (ca. 24 million USD) as the criteria of cutoff. The third pair of subsamples is built according to the median size of private equity provider age (7 years) as the cutoff criterion (*PE_Young vs. PE_Old*). After calculating the HHI concentration values for every portfolio characteristic and separately for all subgroups, we test if the pairs of subsamples have the same median according to the Mann-Whitney U-Test. As the subsamples based on alternative size proxies lead to equivalent results compared to total assets, we exclude them from our discussions for brevity. The table reports the *p*-values of the difference tests.

** represent significance at the 5 percent level.

Table 5

Mann-Whitney U-Test of portfolio investment differences within total sample and subsamples.

		Total	*Large*	*Small*	*Minority (≤25%)*	*Blocking minority (25-50%)*	*Majority (>50%)*
		n=49	n=24	n=25	n=21	n=15	n=13
		Median	Median	Median	Median	Median	Median
Age	Young	10.00%	0.00%	31.50%	4.25%	10.00%	15.00%
	Old	90.00%	100%	68.50%	95.75%	90.00%	85.00%
Mann-Whitney U-Test		0.000***	0.000***	0.016**	0.000***	0.020**	0.003***
Stage	Early	20.00%	20.00%	20.00%	15.00%	10.00%	30.00%
	Later	80.00%	80.00%	80.00%	85.00%	90.00%	70.00%
Mann-Whitney U-Test		0.000***	0.000***	0.000***	0.000***	0.003***	0.314
Country	MENA	90.00%	85.00%	100%	75.00%	98.00%	100%
	Non-MENA	10.00%	15.00%	0.00%	25.00%	2.00%	0.00%
Mann-Whitney U-Test		0.000***	0.001***	0.000***	0.003***	0.003***	0.000***
Branch	High-tech	14.50%	12.60%	17.50%	1.00%	20.00%	20.00%
	Non-high-tech	85.50%	87.40%	82.50%	99.00%	80.00%	80.00%
Mann-Whitney U-Test		0.000***	0.000***	0.000***	0.000***	0.003***	0.011**

Notes: In order to find the direction of specialization on the level of business start, financing stage, country and on the branch level, we regard on each level two groups as young (0-3 years) and old (>3 years), early (seed and start-up) and later (expansion, bridge, MBO/MBI and turnaround) stage, MENA (Middle East and North Africa) and Non-MENA based portfolio companies as well as high-tech and non-high-tech portfolio investments. Then, we apply the Mann-Whitney U-Test to find out statistical differences between the two groups on each of the four levels. We do the difference tests for the total sample and for the subsamples with private equity providers' size (large vs. small) and preferred shareholding focus (minority vs. blocking minority vs. majority shareholding) to control the robustness of the results. The table reports the *p*-values of the difference tests.

, * represent significance at the 5 percent, and 1 percent levels.

Table 6

Mann-Whitney U-Test of portfolio investment differences within alternative subsample compositions.

		Total	*Large(AUM)*	*Small(AUM)*	*Large(Inv_Size)*	*Small(Inv_Size)*	*PE_Young*	*PE_Old*
		n=49	n=23	n=23	n=21	n=20	n=25	n=24
		Median	Median	Median	Median	Median	Median	Median
Age	Young	10.00%	0.00%	17.50%	10.00%	27.50%	25.00%	2.44%
	Old	90.00%	100.00%	82.50%	90.00%	72.50%	75.00%	97.56%
Mann-Whitney U-Test		0.000***	0.000***	0.000***	0.000***	0.009***	0.000***	0.000***
Stage	Early	20.00%	30.00%	12.50%	20.00%	15.00%	30.00%	10.00%
	Later	80.00%	70.00%	87.50%	80.00%	85.00%	70.00%	90.00%
Mann-Whitney U-Test		0.000***	0.001***	0.000***	0.001***	0.000***	0.004***	0.000***
Country	MENA	90.00%	90.50%	88.35%	90.50%	100.00%	86.70%	98.00%
	Non-MENA	10.00%	9.50%	11.65%	9.50%	0.00%	13.30%	2.00%
Mann-Whitney U-Test		0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
Branch	High-tech	14.50%	15.00%	11.20%	15.00%	20.00%	15.00%	14.00%
	Non-High-tech	85.50%	85.00%	88.80%	85.00%	80.00%	85.00%	86.00%
Mann-Whitney U-Test		0.000***	0.000***	0.000***	0.000***	0.001***	0.000***	0.028**

Notes: In order to find the direction of specialization on the level of business start, financing stage, country and on the branch level, we regard on each level two groups as young (0-3 years) and old (>3 years), early (seed and start-up) and later (expansion, bridge, MBO/MBI and turnaround) stage, MENA (Middle East and North Africa) and Non-MENA based portfolio companies as well as high-tech and non-high-tech portfolio investments. Then, we apply the Mann-Whitney U-Test to find out statistical differences between the two groups on each of the four levels. We do the difference tests for the total sample and for the subsamples with private equity providers' size (large vs. small) focus. To control the robustness of the results, we regard here further subsamples with alternative size proxies in terms of assets under management *(AUM)* (525 million USD) and in terms of average investment size *(Inv_Size)* with median cutoff values of 525 million USD and ca. 24 million USD. As these further subsamples with alternative size proxies lead to equivalent results compared to total assets, we exclude them from our discussions for brevity. Additionally, we control for private equity provider age by regarding a pair of subsamples with young (*PE_Young*) and old (*PE_Old*) private equity providers based on the median cutoff value of 7 years. The table reports the *p*-values of the difference tests. *** represent significance at the 1 percent level.

Table 7
Contractual characteristics and syndication motives.

	Very important					Not important	Median
	6	5	4	3	2	1	
Contractual characteristics (n=47)							
Staged financing	36.2%(17)	34%(16)	23.4%(11)	4.3%(2)	2.1%(1)	0%(0)	5.000
Financial performance	40.4%(19)	42.6%(20)	12.8%(6)	0%(0)	0%(0)	4.3%(2)	5.000
Corporate strategy	34%(16)	34%(16)	19.1%(9)	4.3%(2)	0%(0)	8.5%(4)	5.000
Operative performance	25.5%(12)	36.2%(17)	27.7%(13)	2.1%(1)	0%(0)	8.5%(4)	5.000
Strategic performance	25.5%(12)	36.2%(17)	17%(8)	10.6%(5)	2.1%(1)	8.5%(4)	5.000
Syndication	34%(16)	10.6%(5)	14.9%(7)	23.4%(11)	12.8%(6)	4.3%(2)	4.000
Syndication motives							
Risk sharing (n=48)	27.1%(13)	33.3%(16)	22.9%(11)	8.3%(4)	2.1%(1)	6.3%(3)	5.000
Improved deal selection (n=48)	22.9%(11)	39.6%(19)	20.8%(10)	6.3%(3)	4.2%(2)	6.3%(3)	5.000
Improved monitoring (n=48)	20.8%(10)	29.2%(14)	31.3%(15)	8.3%(4)	4.2%(2)	6.3%(3)	4.500
Value added (n=48)	25%(12)	39.6%(19)	10.4%(5)	12.5%(6)	8.3%(4)	4.2%(2)	5.000
Additional deal flow (n=48)	20.8%(10)	29.2%(14)	20.8%(10)	12.5%(6)	10.4%(5)	6.3%(3)	4.500
Early stage (n=47)	29.8%(14)	29.8%(14)	17%(8)	6.4%(3)	10.6%(5)	6.4%(3)	5.000
Later stage (n=47)	6.4%(3)	17%(8)	21.3%(10)	21.3%(10)	25.5%(12)	8.5%(4)	3.000

Notes: In this Table, there is presented the relative and absolute frequencies as well as the median values for the contract terms and syndication motives. The respondents had to assess typical terms of a contract and syndication motives in the range of 1, i.e. not important, and 6, i.e. very important.

Table 8

Difference tests of contractual and financing characteristics.

	Total	*Large*	*Small*	**Mann-Whitney**	*Minority (≤25%)*	*Blocking minority (25-50%)*	*Majority (>50%)*	**Kruskal-Wallis**
	n=	n= 23	n= 24	**U-Test**	n= 20	n= 15	n= 13	**H-Test**
	Median	Median	Median		Median	Median	Median	
Contractual characteristics								
Staged financing	5.000	5.000	5.000	0.248	5.000	6.000	5.000	0.034**
Financial performance	5.000	5.000	5.000	0.687	5.000	5.000	6.000	0.009***
Corporate strategy	5.000	5.000	5.000	0.722	5.000	4.000	6.000	0.024**
Operative performance	5.000	5.000	5.000	0.285	5.000	4.000	5.000	0.204
Strategic performance	5.000	5.000	5.000	0.093*	5.000	4.000	5.000	0.027**
Syndication	4.000	4.000	4.000	0.767	4.000	6.000	3.000	0.073*
Syndication motives								
Risk sharing	5.000	5.000	5.000	0.831	5.000	4.000	5.000	0.347
Improved deal selection	5.000	5.000	4.000	0.024**	5.000	5.000	5.000	0.392
Improved monitoring	4.500	5.000	4.000	0.044**	5.000	4.000	4.500	0.496
Value Added	5.000	5.000	5.000	0.095*	5.000	5.000	4.000	0.095*
Additional deal flow	4.500	5.000	4.000	0.010***	5.000	4.000	4.000	0.716
Early stage	5.000	5.000	5.000	0.083*	5.000	5.000	5.500	0.309
Later stage	3.000	4.000	3.000	0.536	3.000	3.000	3.500	0.970

Notes: The median concentration values for contract terms and syndication motives are listed for the total sample and for the subsamples. The respondents had to assess typical terms of a contract and syndication motives in the range of 1, i.e. not important, and 6, i.e. very important. In this Table, we differentiate between large and small *Shari'ah*-compliant private equity providers based on the median size in total assets (ca. 373 million USD) as the criterion of cutoff as well as subsamples differing between minority (≤25%), blocking minority (25-50%) and majority (>50%) shareholding counterparts. Our Chi-square tests confirm the independence of these subgroups, so that we can exclude biases resulting from relationships between the size of a private equity provider and the shareholding in its portfolio companies. We also regard the median size in assets under management and the median size in average investments as alternative cutoff criteria, leading to equivalent results compared to total assets, why we exclude them from our discussions for brevity. We test if the groups have the same median according to the Mann-Whitney U-Test in case of 2 subsamples of size and according of the Kruskal-Wallis H-Test due to the fact of more than 2 subgroups in case of the three shareholder types. The table reports the *p*-values of the difference tests.

*, **, *** represent significance at the 10 percent, 5 percent, and 1 percent levels.

Table 9

Difference tests of contractual and financing characteristics with alternative compositions.

	Total	*Large(AUM)*	*Small(AUM)*	**Mann-Whitney**	*Large(Inv_Size)*	*Small(Inv_Size)*	**Mann-Whitney**	*PE_Young*	*PE_Old*	**Mann-Whitney**
	n=	n= 23	n= 21	**U-Test**	n= 21	n= 18	**U-Test**	n= 25	n= 23	**U-Test**
	Median	Median	Median		Median	Median		Median	Median	
Contractual characteristics										
Staged financing	5.000	5.000	5.000	0.543	5.000	5.000	0.687	5.000	5.000	0.334
Financial performance	5.000	5.000	5.000	0.463	5.000	5.000	0.438	5.000	5.000	0.982
Corporate strategy	5.000	5.000	5.000	0.685	5.000	5.000	0.576	5.000	5.000	0.300
Operative performance	5.000	5.000	5.000	0.844	5.000	5.000	0.523	5.000	5.000	0.256
Strategic performance	5.000	5.000	5.000	0.422	5.000	4.000	0.254	5.000	5.000	0.220
Syndication	4.000	4.000	4.000	0.809	6.000	3.500	0.051*	4.000	4.500	0.792
Syndication motives										
Risk sharing	5.000	5.000	5.000	0.496	5.000	5.000	0.978	5.000	5.000	0.949
Improved deal selection	5.000	5.000	5.000	0.759	5.000	4.000	0.090*	5.000	5.000	0.804
Improved monitoring	4.500	5.000	4.000	0.060*	5.000	4.000	0.018**	5.000	4.000	0.923
Value Added	5.000	5.000	5.000	0.557	5.000	5.000	0.201	5.000	5.000	0.991
Additional deal flow	4.500	5.000	4.000	0.022**	5.000	4.000	0.017**	4.000	5.000	0.245
Early stage	5.000	5.000	5.000	0.846	5.000	4.500	0.025**	5.000	5.000	0.652
Later stage	3.000	4.000	2.500	0.140	3.000	2.000	0.112	3.000	4.000	0.120

Notes: The median concentration values for contract terms and syndication motives are listed for the total sample and for the subsamples. The respondents had to assess typical terms of a contract and syndication motives in the range of 1, i.e. not important, and 6, i.e. very important. In this Table, we differentiate between large and small *Shari'ah*-compliant private equity providers based on the median size in assets under management *(AUM)* (525 million USD) and on the median size in average investment size *(Inv_Size)* (ca. 24 million USD) as alternative cutoff criteria, leading to equivalent results compared to total assets. That is why we exclude them from our discussions for brevity. In addition, we regard a further pair of subsamples with young (*PE_Young*) and old (*PE_Old*) private equity providers based on the median cutoff value of 7 years. We test if the groups have the same median according to the Mann-Whitney U-Test. The table reports the *p*-values of the difference tests.

*, **, *** represent significance at the 10 percent, 5 percent, and 1 percent levels.

Kapitel VI

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Einflussfaktoren *Shari'ah*-konformer Eigenfinanzierungen auf Venture Capital-Finanzierungsentscheidungen nicht-finanzieller Unternehmen

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VI Einflussfaktoren *Shari'ah*-konformer Eigenfinanzierungen auf Venture Capital-Finanzierungsentscheidungen nicht-finanzieller Unternehmen

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Zusammenfassung

Shari'ah-konforme eigenkapitalnahe Finanzierungskontrakte unterscheiden sich von ihren westlichen Formen durch einen restriktiveren Rechtsrahmen, so dass Instrumente zur effizienten Anreizgestaltung zwischen den Transaktionspartnern begrenzt sind. Aus Unternehmenssicht sind potentielle Nutzen aus *Shari'ah*-konformen Eigenfinanzierungen v.a. in der Frühphase zu erwarten, in der die Finanzierungsalternativen typischerweise beschränkt sind. Trade-Offs von *Shari'ah*-konformen Venture Capital Gesellschaften (VCG) über Erfolgs- und Risikoteilungen sowie zu deren Absicherung getroffenen weiteren vertraglichen Hauptbestandteilen (Covenants) sind begrenzt einsetzbar, aufgrund des negativen Einflusses auf die Leistungsanreize im Portfoliounternehmen (PU), der Kosten von Trade-Off-Maßnahmen sowie dem Wettbewerb gegenüber v.a. westlichen Anbietern. Aufgrund hoher Informationsasymmetrien und Verhaltensunsicherheiten, insbesondere in der Frühphase und bei innovativen Unternehmen, sind *Shari'ah*-konforme VCGen sehr selektiv bei der Auswahl von PU. Beim Zustandekommen einer Transaktionsbeziehung sind gerade im Fall einer spezialisierten VCG, dafür umso mehr Wertsteigerungsmaßnahmen gegenüber dem PU zu erwarten.

Schlüsselwörter: *Shari'ah*-konformes Finanzwesen, Beteiligungsfinanzierungen, Kapitalstruktur, Finanzinstrumente, Finanzkontraktgestaltung

JEL-Klassifikation: G24, G30, G32

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Diese Studie erschien in einer früheren Version unter dem Namen „Stiften Shari'ah-konforme Finanzinstrumente einen Zusatznutzen mit komplementär strukturierten Finanzierungsmöglichkeiten in der Kapitalstruktur?“ mit Andreas Oehler. Ich danke Benjamin Hartl, Tim Herberger, Andreas Höfer, Stefan Wendt und einem anonymem Gutachter für Diskussionen und Kommentare.

1. Einführung

Ein funktionierender Wagniskapitalmarkt trägt entscheidend dazu bei, das Innovations- und Wachstumspotential einer Volkswirtschaft auszuschöpfen. *Shari'ah*-konforme[1] Finanzierungsinstrumente mit eigenkapitalnahen Eigenschaften können unter bestimmten Voraussetzungen alternative Lösungen für nicht-finanzielle Unternehmen bieten, die insbesondere in der Frühphase mutmaßlich ein Eigenfinanzierungsproblem in Bezug auf Finanzierungsinstrumente westlicher Industrieländer (westlich im Folgenden) aufweisen. Dies betrifft insbesondere junge und innovative Unternehmen in Kontinentaleuropa, wo typischerweise der Wagniskapitalmarkt v.a. im Vergleich zu den USA unterentwickelt ist.[2] Für die Schwäche des Wagniskapitalmarkts werden institutionelle Rahmenbedingungen im kontinental-europäischen Rechtsraum (Civil Law) im Vergleich zum angelsächsischen Rechtsraum (Common Law) verantwortlich gemacht, wo jungen und innovativen Unternehmen, aufgrund stärkerer Rechtsstellung und ausgeprägter legaler Durchsetzungsmechanismen von Investoren, ein besserer Zugang zu eigenkapitalnahen Finanzierungsinstrumenten mit höher entwickelten Kapitalmärkten zur Verfügung steht.[3] Der Analysefokus liegt auf eigenkapitalnahe Beteiligungsfinanzierungen, weil diese dem Ideal der *Shari'ah* entsprechen und sie für Frühphasenfinanzierungen geeignet sind, in der gerade die Finanzierungsalternativen für

[1] *Shari'ah* bezeichnet das Islamische Recht, das sich aus den primären und sekundären Rechts- und Erkenntnisquellen des Islam zusammensetzt. Zu den primären Quellen zählen der *Koran* als heiliges Buch der Moslems und die *Sunna*, die die Aussagen und Handlungen des Propheten Mohammed beinhaltet. Die sekundären Quellen umfassen die Konsensmethode (*Idjma*), die Analogie (*Qiyas*), das Gewohnheitsrecht (*Urf*) und das eigene Urteil (Idjtihad). Vgl. *Usmani* (2002), S. 83; *Rohe* (2011), S. 48 ff. Für die praktische Ausgestaltung von Finanzkontrakten sind v.a. die sekundären Quellen relevant. Sie erlauben einen Auslegungsspielraum, der nicht nur zwischen zulässig (*Halal*) und verboten (*Haram*) unterscheidet. Vgl. *Nienhaus* et al. (2010), S. 440 f.; *Luttermann* (2009), S. 710.

[2] Vgl. *Berger/Udell* (1998), S. 624; *Gierath* (2006), S. 22 f.; *Rashid* (2005), S. 238 ff.; *Gassner/Wackerbeck* (2010), S. 200 ff.; *Schäfer et al.* (2004), S. 7 ff.; *Audretsch*/*Lehmann* (2004), S. 348 ff.; *Black/Gilson* (1998), S. 246 ff.; *Becker/Hellmann*, (2002), S. 3 ff.;

[3] Vgl. *LaPorta et al.* (1997, 1998); *Bottazzi et al.* (2008, 2009); *Black/Gilson* (1998); Siehe *DAI* (2010), Kap. 4 zum Eigenfinanzierungsproblem deutscher Unternehmen auch im internationalen Vergleich und die dort angegebenen weiteren Quellen; *EVCA* (2012), S. 21, 24.

ein junges und innovatives Unternehmen gering sind.[4] Welche Finanzierungswirkung *Shari'ah*-konforme eigenkapitalnahe Instrumente im Vergleich zu entsprechenden westlichen Finanzierungsinstrumenten haben, hängt wesentlich von den Eigenschaften des Portfoliounternehmens (PU), der Charakteristika des Wagniskapitalgebers in Form einer Venture Capital Gesellschaft (VCG) sowie der Interessengegensätze ab, die die beiden Transaktionspartner unterliegen.[5] Zur Analyse der unterschiedlichen Finanzierungswirkungen, werden die besonderen Rechtsrahmenbedingungen der *Shari'ah* herausgestellt, die aus den formalen Kriterien folgen. Denn im Vergleich der beiden Rechtsrahmen sind unterschiedliche Allokationen von Erfolgs- und Risikoteilungsmerkmalen einer Vertragsgestaltung möglich, die zum Ziel einer effizienten vertraglichen Anreizgestaltung zwischen den Transaktionspartnern im Sinne der Interessenangleichung führen.

Untersuchungen zu *Shari'ah*-konformen Finanzierungsinstrumenten sind zumeist deskriptiv, die v.a. Besonderheiten und Vergleiche zu westlich geprägten Instrumenten thematisieren.[6] *Nagano* (2010) testet empirisch den Einfluss von Islamischen Anleihen (*Sukuk*) auf Kapitalstrukturentscheidungen unter Anwendung der Pecking-Order-Theorie.[7] Allerdings werden tiefergehende vergleichende Analysen der Vertragsgestaltung, insbesondere bzgl. der Lösungsmöglichkeiten von Prinzipal-Agenten-Problemen bei Venture Capital Finanzierungen vernachlässigt. Darüber hinausgehende Arbeiten analysieren typische *Shari'ah*-konforme Finanzierungskontrakte nach institutionsökonomischen Maßstäben, wobei auch ihre besonderen Risikoeigenschaften sowie die Möglichkeiten des Risikomanagements für Finanzintermediäre behandelt

[4] Vgl. *Imran* (2008), S. 88 f.; *Rashid* (2005), S. 228 ff.; *Iqbal/Molyneux* (2005), S. 147; *Schoon* (2009), S. 111 f.; *Durrani/Boocock* (2006), S. 159 ff.; *Kayed* (2012), S. 206 f.; *Bälz* (2000), S. 7 ff.
[5] Vgl. *Harris/Raviv* (1991); *Titman/Wessels* (1988); *Bottazzi et al.* (2008).
[6] Vgl. *Nienhaus* (1982); *Hassan/Lewis* (2007); *Chapra* (1992); *El-Gamal* (2011); *Jaffer* (2004).
[7] Vgl. *Nagano* (2010), S. 6 ff.

werden.[8] *Van Greuning/Iqbal* (2007) führen eine differenzierte institutionsökonomische Analyse für den Fall eines dualen Finanzsystems durch, in der systemübergreifende adverse Selektionseffekte zu erwarten sind.[9] In der Literatur gibt es bereits zahlreiche Untersuchungen zu den Einflüssen gesetzlicher und regulatorischer Rahmenbedingungen auf die vertragliche Beziehung von Transaktionspartnern, jedoch ohne dabei die institutionellen Effekte der *Shari'ah* in die Analysen einzubeziehen.[10] Der vorliegende Beitrag beschäftigt sich mit der Frage, wie *Shari'ah*-konforme Eigenfinanzierungen im Vergleich zu westlichen eigenkapitalnahen Instrumenten die Finanzierungsentscheidung nicht-finanzieller innovativer Unternehmen in der Frühphase beeinflussen. Dabei werden anhand der Erfolgs- und Risikoteilungskriterien nach *Bitz/Stark* (2008)[11] die typisch *Shari'ah*-konformen, intermediären und eigenkapitalnahen Finanzierungsinstrumente den westlichen Pendants gegenübergestellt. Hierzu wird der Einfluss möglicher veränderter Geschäftsmodelle von *Shari'ah*-konformen VCGen auf die Kapitalstrukturentscheidungen des finanzsuchenden Unternehmens theoretisch untersucht, um neben der Nachfrage- auch die Anbieterseite zu beleuchten. Die vergleichende Analyse der Finanzierungsinstrumente konzentriert sich überwiegend auf die Transaktionsbeziehung zwischen dem PU und der VCG, in der der Einfluss (länderspezifischer) institutioneller Besonderheiten auf die Vertragsgestaltung eine untergeordnete Rolle spielt.[12] Die speziellen institutionellen Rahmenbedingungen kommen hauptsächlich durch die typischen Finanzierungsinstrumente im Finanzsystem zum Tragen. Die Analysen zeigen u.a., dass aufgrund eingeschränkter Instrumente des Interessenausgleichs im Rahmen der *Shari´ah*,

[8] Vgl. *Sundararajan* (2007), S. 54 f.; *Archer/Karim* (2007), S. 230 ff.; *El-Gamal* (2011), S. 167 ff.; *Henry* (2004), S. 104 f.; *Hegazy* (2007), S. 587 f.; *Akkizidis/Khandelwal* (2007), S. 29 ff.; *Ali* (2005), S. 45 f.; *Ahmed* (2004), S. 42 ff.; *Khalil et al.* (2004), S. 65 ff.

[9] Vgl. *Van Greuning/Iqbal* (2007), S. 16 ff.; *Akacem* (2008), S. 74 f.; *Visser* (2009), S. 89 f.

[10] Vgl. *LaPorta et al.* (1998); *Lerner/Schoar* (2005); *Qian/Strahan* (2007); *Bottazzi et al.* (2009).

[11] Die Entscheidungskriterien aus Unternehmer- oder Unternehmenssicht nach *Bitz/Stark* (2008) umfassen Ergebnis/Rendite, Rückzahlung/Tilgung, Mitwirkung und Kontrolle, Rechtsstellung, Bilanz, Steuern. Siehe hierzu *Bitz/Stark* (2008), S. 33ff., 143.

[12] Vgl. zum Einfluss institutioneller Rahmenbedingungen auf die Vertragsgestaltung zwischen PU und VCG *Bottazzi et al.* (2009), S. 563 ff.; *Qian/Strahan* (2007), S. 2808 ff.; *Rudolph/Haagen*, (2006) S. 343 ff.

nur begrenzt ein Trade-Off entlang von Erfolgs- und Risikoteilungskriterien erfolgen kann. Inwieweit eine *Shari'ah*-konforme VCG statt der aufwendigen Durchsetzung seiner Kontroll- und Informationsrechte wertsteigernde Unterstützungsmaßnahmen vornimmt, hängt v.a. von ihrem Spezialisierungsgrad ab und von der Selektion der PU.

Im weiteren Verlauf ist diese Arbeit, wie folgt gegliedert: In Kapitel II werden zunächst die theoretischen Grundlagen behandelt, wo auch die Besonderheiten der eigenkapitalnahen *Shari'ah*-konformen Finanzierungsinstrumente wie auch die spezifischen Herausforderungen für *Shari'ah*-konformen VCGen aufgezeigt werden. Kapitel III beschäftigt sich mit der Analyse des Einflusses von *Shari'ah*-konformen Eigenfinanzierungen auf Venture Capital-Finanzierungsentscheidungen nicht-finanzieller Unternehmen. Eine Zusammenfassung dieses Beitrags erfolgt in Kapitel IV.

2. Theoretische Grundlagen und Analyserahmen

2.1. Eigenkapitalnahe Finanzierungsinstrumente

Zur effizienten Allokation von Rechten und Pflichten der Transaktionspartner ist grds. die Wahl der Finanzierungsinstrumente, der Erfolgs- und Risikoteilungen sowie zu deren Absicherung vereinbarter weiterer vertraglicher Hauptbestandteile (Covenants) entscheidend. Eine effiziente Allokation ist dann erreicht, wenn die Agency-Kosten ihr Minimum erreichen bzw. im Zustand der geringsten Kontrolle durch die Kapitalgeber. Dabei lassen sich Marktunvollkommenheiten v.a. nach endogenen Finanzierungsrisiken systematisieren. Diese stellen Informations-, Delegations- und Betroffenheitsrisiken dar, welche Risikotransfers unter den Transaktionspartnern auslösen können.[13] Bei Frühphasenfinanzierungen werden Marktunvollkommenheiten in der Theorie typischerweise in Form von wandelbaren Finanzierungsinstrumenten (Convertibles)

[13] Vgl. *Oehler* (2005), S. 31 f.; *Oehler/Unser* (2002), S. 197.

gelöst, die mit umfassenden vertraglichen Vereinbarungen (Covenants) versehen sind. Diese dienen zum Interessenausgleich bzw. zur anreizkompatiblen Vertragsgestaltung zwischen einer VCG und seines PUs und können zahlreiche Kontroll- und Mitwirkungsrechte beinhalten.[14] Wandelbare Instrumente ermöglichen somit als hybride Finanzierungsform eine zustandsabhängige und effiziente Verteilung von Erfolgs- und Risikoteilungen, die die optimale Kapitalstruktur in Abhängigkeit vom Kapitalbedarf bestimmen. Dadurch können sie zum gleichzeitigen Abbau von Informations- und Delegationsrisiken beitragen, ohne dabei eigene Risiken zu erzeugen. Weitere Anwendungsmotive sind v.a. die Erzielung von Bonitätsverbesserungen durch die Eigenkapitalzurechnung sowie der Verwässerungsschutz der (Alt-)Eigentümer des PUs.[15]

Für die vergleichende Analyse westlicher und *Shari'ah*-konformer eigenkapitalnaher Finanzierungsinstrumente wird für Ersteres folgende Auswahl getroffen: Eigenfinanzierung, typische und atypische stille Beteiligungen sowie Genussscheine. Aufgrund der Tatsache, dass in zahlreicher Literatur eingehend die Eigenschaften der ausgewählten westlichen Instrumente unter Erfolgs- und Risikogesichtspunkten behandelt wurde, wird im Rahmen dieser Arbeit auf eine erneute Charakterisierung entlang der Kriterien nach *Bitz/Stark* (2008) verzichtet.[16]

Die Unterschiede in der Finanzierungswirkung von westlichen und *Shari'ah*-konformen Eigenfinanzierungsinstrumenten ergeben sich aus den besonderen rechtlichen Rahmenbedingungen, die Letzteres gegenüber dem Ersteren unterliegt. Nachdem die formalen Kriterien einer Transaktion bzw. Kooperation erfüllt worden sind, folgt zunächst die qualitative und dann die quantitative Prüfung der Vertragsgrundlage (vgl. Abb. 1 im

[14] Vgl. *Admati/Pfleiderer* (1994); *Gompers* (1995); *Gebhardt/Schmidt* (2001), S. 10 ff.; *Rudolph* (2006), S. 365 ff.
[15] Vgl. *Aghion/Bolton* (1992); *Berglöf* (1994); *Stein* (2005), S. 42 ff.; *Franke* (2004), S. 44 ff.; *Rudolph* (2006), S. 373 ff.
[16] Vgl. z.B. *Drukarczyk* (2008), S. 410 ff.; *Perridon/Steiner* (2007), S. 352 ff., 412 ff.; *Rudolph* (2006), S. 242 ff.

Anhang). Entsprechend der Kennzahlenkriterien, ist das Kapitalstrukturrisiko bzw. die Insolvenzwahrscheinlichkeit durch Überschuldung gering. Dies schränkt aber Kapitalstrukturoptimierungen über die Ausnutzung des Leverage-Effekts (Debt Tax Shield) sehr ein, der jedoch für Frühphasenfinanzierungen weniger relevant ist, da aufgrund von besonderen Finanzierungsrisiken der Zugang zu Fremdkapital typischerweise begrenzt ist.[17] Die *Shari'ah* lässt Beteiligungsfinanzierungen über intermediäre Eigenfinanzierungen *((Diminishing)Musharakah)* sowie über einzelne intermediäre Mezzanine-Formen *(Mudarabah)* zu. Mezzanine-Finanzierungen, die über *Mudarabah* hinausgehen, wie insbesondere (wandelbare) Vorzugsaktien, die v.a. bei Frühphasenfinanzierungen im angelsächsischen Raum Anwendung finden, sind wegen ihrer Fremdkapital- und Optionseigenschaften nicht erlaubt.[18] In Folge des weitreichenden Ausschlusses von Mezzanine-Finanzierungen können jedoch nur eingeschränkt neue Informationen zum Projektverlauf und zum Kapitalnehmer, die erst während der Beteiligungsphase offensichtlich werden und nicht verifizierbar sind, den zu Vertragsbeginn beschlossenen Risiko- und Ertragsbedingungen angepasst werden. Eine zustandsabhängige und effiziente Anreizgestaltung ist damit auch nur eingeschränkt möglich. Daher können im Zuge von Trade-Offs unterschiedliche Risiko- und Erfolgsallokationen entstehen, die zum Ziel einer effizienten Anreizgestaltung zwischen einer VCG und seinem PU führt. Im Folgenden werden typisch *Shari'ah*-konforme eigenkapitalnahe Instrumente, die zur vergleichenden Analyse gegenüber entsprechenden westlichen Finanzierungen herangezogen werden, in ihren klassischen Formen nach den Kriterien von *Bitz/Stark* (2008) charakterisiert. *(Diminishing) Musharakah* ist vergleichbar mit einer offenen/direkten Beteiligung nach § 272 HGB oder einer gemeinsamen Gesellschaft nach §§ 705 ff. BGB (Joint Venture). Im Fall von *Diminishing*

[17] Vgl. *Weitnauer* (2000), S. 5 ff.; *Drukarczyk* (2008), S. 326.
[18] Vgl. *Mirakhor/Zaidi* (2007), S. 51 f.; *Lewis/Algaoud* (2001), S. 40 ff.; *Usmani* (2002), S. 12 ff.; *Iqbal/Molyneux* (2005), S. 20 f.; *Tamer* (2005), S. 75 ff., 107 ff.

Musharakah vereinbaren die Transaktionspartner ein Vorkaufsrecht (Right of First Refusal) sowie eine Einlöseklausel (Redemption Right), die dem PU bei Vorliegen von positiven Cashflows den Rückkauf eigener Anteile erlaubt.[19] Im Vergleich dazu weist *Mudarabah* parallelen zu einer stillen Gesellschaft nach §§ 230-237 HGB auf.[20] In ihren modernen Formen können diese zwei Finanzinstrumente auch in Kombination auftreten oder sie können mit Zusatzvereinbarungen (z.B. *Wakala*) versehen sein ohne eine unmittelbare Verknüpfung zu *(Diminishing) Musharakah* oder zu *Mudarabah*. Allerdings führt aus Sicht der *Shari'ah* die Verschachtelung mehrerer Verträge zu *Gharar* (Unischerheit), weshalb nur sehr begrenzte Strukturierungsformen zugelassen sind.[21] Daher findet die vergleichende Analyse auf Basis der klassischen Grundformen statt. Während bei *(Diminishing) Musharakah* sich sowohl die VCG als auch das PU an der Finanzierung beteiligen, findet dies bei *Mudarabah* nur durch den Ersteren statt. Das heißt im Falle von *(Diminishing) Musharakah*, kann das PU durch die eigene Beteiligung Informationsrisiken abbauen. Beiden Instrumenten ist in der Erfolgsteilung gemeinsam, dass die freie Vereinbarkeit der, beim Vertragsabschluss festgelegten, Verteilungsquote des laufenden Ergebnisses oder der Rendite gilt und die Rückzahlung oder die Tilgung vom Liquiditationserlös abhängt. *Shari'ah*-konforme Finanzierungskontrakte erlauben nur ein begrenztes Spektrum von Maßnahmen, die Marktunvollkommenheiten in Form von endogenen Finanzierungsrisiken entgegenwirken können. Die Risikoteilungen, wie Mitwirkung und Kontrolle sowie die Rechtsstellung in der Insolvenz, sind vorgeschrieben und unabhängig von Vereinbarungen der Erfolgsteilung. Außer im Falle von *Mudarabah* sind keine asymmetrischen Finanzierungsverträge bzgl. der Risikoteilung zulässig, d.h.

[19] Im Fall von *Diminishing Musharaka* unterliegt der Erwerb eigener Anteile durch oder mit Mitteln der Gesellschaft entsprechend §33 GmbHG und §§71 ff. AktG Restriktionen. Siehe hierzu *Bälz* (2000), S. 7. Vgl. auch *Durrani/Boocock* (2006), S. 168.

[20] Vgl. *Bälz* (2000), S. 7 f.; *Bacha*, (1997), S. 3 f.; *Dalkusu* (1999), S. 155 ff.; *Akkizidis/Khandelwal* (2007), S. 14 f.

[21] Vgl. *Mahlknecht* (2008), S. 119; *Johansen*/*Hanif* (2012), S. 181 ff.; *Durrani/Boocock* (2006), S. 162 ff.;

die Transaktionspartner im Verhältnis ihrer Einlage am Gesamtkapital Mitwirkungs-, Informations- und Kontrollrechte haben sowie in diesem Verhältnis haften, so dass Risikoumverteilungen für eine effiziente anreizkompatible Vertragsgestaltung kaum möglich sind.[22] *Mudarabah* unterscheidet sich von *(Diminishing) Musharakah* im Wesentlichen dadurch, dass die VCG keine Mitwirkungs- und Kontrollrechte hat. Im Falle von *(Diminishing) Musharakah* ist die Akzeptanz der Verwässerung symmetrisch in Höhe der Einlage, neben der rein erfolgsabhängigen Vergütung des Managements des PUs, ein zusätzliches Instrument zur Senkung der adversen Selektionsgefahr aus Sicht der VCG. Das bedeutet nur im Fall von *(Diminishing) Musharakah* ist es für die VCG möglich nach Vertragsabschluss Asymmetrien und Unsicherheiten zum Verhalten des Managements des PUs entsprechend der westlichen Finanzierungsform zu reduzieren. Schließlich ist diesen *Shari'ah*-konformen Beteiligungsfinanzierungen gemeinsam, dass einem Kapitalgeber ausschließlich Sicherheiten aus dem PU selbst (Inside Collateral) zur Verfügung gestellt werden dürfen und, dass sie bilanziell und wirtschaftlich dem Eigenkapital zuzuordnen sind. Im Vergleich hierzu trifft dies in der steuerlichen Behandlung eindeutig nur auf die beiden Ausgestaltungsformen von *Musharakah* zu.[23] Demzufolge liegen bei *Shari'ah*-konformen Beteiligungsfinanzierungen eine Verwässerung des Managements vom PU für die beiden Varianten von *Musharakah* vor, während dies für *Mudarabah* nicht gilt. Kosten aus der starken Verwässerung können durch einen höheren Gewinnanteil des Managements vom PU ausgeglichen werden, der zusätzlich ihre Leistungsanreize erhöht und die adverse Selektionsgefahr senkt. Die Erfolgswahrscheinlichkeit des PUs durch höhere Leistungsanreize kann zudem dadurch unterstützt werden, dass eine *Shari'ah*-konforme VCG statt der Ausübung seiner Kontrollrechte verstärkt beratende

[22] Vgl. *Dalkusu* (1999), S. 155 ff.; *Akkizidis/Khandelwal* (2007), S. 14 ff.; *Sahlman* (1988), S. 25 ff.; *Drukarczyk* (2008), S. 160 ff.

[23] Vgl. *Lewis/Algaoud* (2001), S. 40 ff.; *Usmani* (2002), S. 12 ff.; *El-Hawary et al.* (2007), S. 780 ff.; *Kayed* (2012), S. 210 ff.; *Bacha* (1997), S. 3 ff.

Managementaufgaben wahrnimmt.[24]

2.2. Finanzintermediation bei VC-Finanzierungen

Das Zustandekommen und die Abwicklung von Transaktionen sind aus institutionsökonomischer Sicht verbunden mit Informationsasymmetrien und Interessenskonflikten, zu deren Überwindung intermediäre Transformationsfunktionen notwendig sind.[25] Frühphasenfinanzierungen stellen für VCGen höhere Herausforderungen dar. Diese resultieren v.a. aus fehlenden Sicherheiten sowie fehlender Unternehmenshistorie (Tracking Record), die Rückschlüsse auf die Managementqualität zuließe. Hinzu kommt die Informationsasymmetrie und die Unsicherheit über das Investitionsprojekt sowie über das Verhalten des Kapitalnehmers, die ex-ante, ex-interim und ex-post einer Vertragsbeziehung auftreten können.[26] Maßnahmen zur Gegensteuerung sind vor dem Zustandekommen eines Vertrages Informationsbeschaffung und -produktion (Screening/Due Diligence, Signalling) sowie während und nach der Vertragslaufzeit die Schaffung eines Anreiz- und Kontrollsystems (Bonding, Monitoring).[27] Die zusätzliche Herausforderung für *Shari'ah*-konforme VCGen besteht darin, dass ihnen nach dem Vertragsabschluss mit einem PU nur eingeschränkte Maßnahmen zur Verfügung stehen, um Informationsprobleme bewältigen zu können. Daher können im Rahmen der *Shari'ah* die Geschäftsmodelle von VCGen besondere Risikomanagementstrategien implizieren, die sich auf die Finanzierungsentscheidungen von PU auswirken. Zudem sind Frühphasenfinanzierungen über (*Shari'ah*-typische) Eigenfinanzierungen besonders risikoreich bei kleinen und innovativen Unternehmen. Denn diese erfordern

[24] Vgl. *Visser* (2009), S. 91 f.; *Jouaber/Mehri* (2012), S. 12 ff.
[25] Vgl. *Bitz/Stark* (2008), S. 8 ff.; *Hartmann-Wendels/Pfingsten/Weber* (2010), S. 3 ff., 95 ff.; *Franke/Hax* (2009), S. 457 ff., 500 ff.
[26] Vgl. *Oehler* (2005), S. 30 ff.; *Oehler/Unser* (2002), S. 197 ff.; *Berger/Udell* (1998), S. 616; *Cassar* (2004), S. 264.
[27] Vgl. *Picot* et al. (2008), S.60 ff.; *Grichnik/Schwärzel* (2002), S. 6 ff.

unternehmensspezifische Investitionen (Sunk Costs) und spezielle Kenntnisse zur Beurteilung der Erfolgsperspektiven des Investitionsprojekts. Dabei erklärt sich die Existenz von VCGen, wesentlich durch Spezialisierungs- und Koordinationsvorteilen, die wiederum zu Transaktionskostenvorteilen führen sowie der Möglichkeit einer diversifizierten Portfoliozusammenstellung, in der das Risiko-Ertrags-Profil zu Gunsten der VCG gestaltet werden kann. Diese Existenzerklärungen spielen sowohl im Auswahlprozess (Screening) vor dem Vertragsabschluss als auch in den Wertsteigerungsmaßnahmen durch Mitwirkung und Kontrolle (Value Added, Monitoring) nach dem Vertragsabschluss eine wesentliche Rolle.[28] Das Engagement und die Erfahrung von VCGen, wie z.B. bei der Rekrutierung des Managements, bei der Hilfe neue Finanzierungsmittel zu akquirieren oder bei der Vermittlung von Kontakten zu Kunden und Zulieferern, üben einen wesentlichen Einfluss auf Finanzierungsentscheidungen aus, da sie bedeutende Erfolgsfaktoren für das PU darstellen.[29] Dabei lassen sich VCGen nach der Beratungsintensität (aktiv, passiv) und der Tiefe der Beratungsleistung (Allrounder, Spezialist) unterscheiden.[30] Die Anreize von VCGen sich auf wertsteigernde Maßnahmen zu konzentrieren, statt der Durchsetzung und Ausübung kostenintensiver Informations- und Kontrollrechte, hängt entscheidend von der Erfahrung und vom Einfluss der Eigentumsverhältnisse bei VCGen ab, da diese unterschiedliche Zielsetzungen zur Folge haben und damit die Finanzierungsstruktur beeinflussen.[31]

Im Rahmen der *Shari'ah* divergieren die Interessen der Transaktionspartner besonders in der Frühphase und bei Investitionen in innovative und kleine Unternehmungen relativ stark. Die Einschränkungen der *Shari'ah* in der Interessenangleichung von Transaktionspartnern lassen die Bedeutung der nicht

[28] Vgl. *Hartmann-Wendels* (1987), S. 27; *Chan* (1983); *Sahlman* (1990), S. 508; *Lerner* (1995); *Kaplan/Strömberg* (2004), S. 2203 ff.; *Inderst/Mueller* (2009), S. 286 ff.
[29] Vgl. *Hellmann/Puri* (2002); *Kaplan/Strömberg* (2003); *Gompers* (1995); *Visser* (2009), S. 91.
[30] Vgl. *Rudolph/Haagen*, (2006) S. 335 f.
[31] Vgl. *Stein* (2008), S. 269; *Bottazzi et al.* (2008), S. 495; *Bengtsson/Sensoy* (2011), S. 490 ff.; *Gompers et al.* (2009), S. 833.

ausgeschlossenen Instrumente, wie Syndizierung und Stufenfinanzierung, zur Lösung von Interessenkonflikten steigen.[32] Die zur Verfügung stehenden Interessenausgleichsmechanismen erschweren die Minimierung von Agency-Kosten wie unter westlichen Rahmenbedingungen. Ihre Anwendung kann verbunden sein mit der Verursachung eigener Risiken sowie mit höheren Transaktionskosten.[33] Zudem ist in der Frühphase die Leitungs- und Kontrollpräferenz eines PUs grds. höher als in späteren Phasen. Dies gilt umso mehr für Klein- und Familienunternehmen.[34] Je höher diese Präferenz ist, die sich auch in der Rechtsform niederschlägt, desto niedriger sind allerdings die Möglichkeiten der Eigenkapitalbeschaffung bzw. die Bereitschaft von externen VCG, in diese Unternehmen zu investieren. Eine starke Aversion von PU gegenüber Drittgesellschaftern hebelt daher aus Sicht des VCGs den Nutzen der Syndizierung aus. Der restriktive Rechtsrahmen kann aber auch zu einer höheren Standardisierung der Vertragsbeziehungen führen, die zur Senkung von Transaktionskosten beitragen kann. Die vertraglichen Einschränkungen und die erhöhten Unsicherheiten im Rahmen der *Shari'ah* verlangen eine eindeutige strategische Anpassung von *Shari'ah*-konformen VCGen, um höhere Trade-Offs über Koordinationsvorteile (Synergieeffekte), Transaktionskostenvorteile und Netzwerksaktivitäten zu erreichen.[35] Aufgrund der besonderen adversen Selektionsgefahr in einem dualen Finanzsystem, bekommt der Auswahlprozess vor Vertragsabschluss ein umso höheres Gewicht, was infolgedessen vor dem Zustandekommen einer Transaktionsbeziehung zu einer effizienteren Portfolioauswahl im Sinne steigender Erfolgswahrscheinlichkeit führen kann.[36] Da die Entlohnung des Managements vollständig erfolgsabhängig ist, kann sie zur Senkung der adversen Selektionsgefahr unter

[32] Vgl. *Iqbal/Molyneux* (2005), S. 136; *Durrani/Boocock* (2006), S. 165 f.; *Dar* (2007), S. 87.
[33] Vgl. *Dar/Presley* (2000), S. 3 f.; *Iqbal/Molyneux* (2005), S. 143 f.; *Sahlman* (1990); *Gompers* (1995); *Kaplan/Strömberg* (2004); *Tian* (2012); *Lerner* (1994).
[34] Vgl. *Ampenberger et al.* (2009), S. 9; *Berger/Udell* (1998), S. 624; *Cestone* (2001), S. 3.
[35] Vgl. *Weber* (2003), S. 101 ff.; *Inderst/Mueller* (2009), S. 286 ff.
[36] Vgl. *Akacem* (2008), S. 73 ff.; *Gassner/Wackerbeck* (2010), S. 83; Vgl. *Visser* (2009), S. 85 ff.

der Bedingung beitragen, dass das Management nicht risikoavers ist. Dieser Selbstselektionsmechanismus wirkt umso stärker, je höher sein erfolgsabhängiger Anteil ist.[37] Jedoch kann ein zu aufwendiges Auswahlverfahren auch potentiell gute PU abschrecken, aufgrund tiefer Informationseinblicke und der Dauer des Prüfungsprozesses. Nach Vertragsabschluss sind intensive Monitoring- und Managementmaßnahmen zu gewährleisten.[38] Daher stellt sich die Frage, welchen Einfluss *Shari'ah*-konforme eigenkapitalnahe Finanzinstrumente auf die Kapitalstrukturentscheidungen nicht-finanzieller Unternehmen in Abhängigkeit des Geschäftsmodells *Shari'ah*-konformer VCGen haben.

2.3. Theoretischer Analyserahmen

In einem intermediären Beteiligungsfinanzierungsprozess sind typischerweise Investoren, VCGen und PU involviert. Für jeden dieser drei Marktakteure können Prinzipal-Agenten-Beziehungen betrachtet werden, die aus den verschiedenen Interessengruppen (Shareholder, Stakeholder) resultieren. Zudem lassen sich aus Sicht der VCG in einem Beteiligungsfinanzierungsprozess grds. vier Phasen unterscheiden. Diese stellen in zeitlicher Reihenfolge die Mittelbeschaffung (Fundraising), die Investition, das Management und die Kontrolle sowie den Unternehmens- bzw. Anteilsverkauf (Exit) dar.[39] Im Rahmen dieser Arbeit liegt der Fokus auf der Transaktionsebene zwischen einer *Shari'ah*-konformen VCG (formeller Markt) und seines PUs, die in den beiden Phasen der Investition sowie des Managements und der Kontrolle stattfindet (vgl. Abb. 2 im Anhang). Weiterhin umfasst die Analyse Frühphasenfinanzierungen (Early Stage) von kleinen und innovativen PU, weil sie typischerweise nicht das gesamte Spektrum an

[37] Vgl. *Lazaer* (1986); *Ross* (1977); *Jouaber/Mehri* (2012), S. 12 ff.; *Sarker* (1999), S. 9 f.
[38] Vgl. *Sundararajan/Errico* (2002), S. 12 ff.; *Iqbal/Molyneux* (2005), S. 136; *Akkizidis/Khandelwal* (2007), S. 39 ff.
[39] Vgl. *Caselli* (2010), S. 33 ff.

Finanzierungsinstrumenten nutzen können und die zur Verfügung stehende Auswahl in ihrer Funktion vergleichbar ist mit *Shari'ah*-konformen eigenkapitalnahen Finanzierungsinstrumenten.[40] Wir nehmen an, dass die betrachteten PU zumindest in der Frühphase *Shari'ah*-konform operieren, um die vergleichenden Analysen unabhängig von Kosten der Vereinbarkeit des Vertragsrahmens und der -grundlage mit der *Shari'ah* (vgl. Abb. 1 im Anhang) durchzuführen. Innerhalb der beiden betrachteten Marktakteure wird vereinfachend Harmonie zwischen dem Management und den (Alt-)Eigentümern angenommen, so dass Erstere im Sinne der Letzteren in Fragen der Kapitalstruktur entscheiden. Diese Untersuchungseingrenzung stellt dabei die, durch Informationsasymmetrien und durch opportunistische Verhaltensweisen gekennzeichnete, Transaktionsbeziehung zwischen der VCG und des PUs in den Vordergrund. Die Eigentumsverhältnisse der VCG beeinflussen ihre Zielsetzungen und somit die Verteilung von Erfolgs- und Risikoteilungen zwischen PU und VCG. Diese Verteilung hat in der Folge Einfluss auf das Ausmaß von wertsteigernden Maßnahmen der VCG gegenüber ihres PUs. Der Analyserahmen dieser Arbeit konzentriert sich auf unabhängige VCG, da diese eindeutig renditeorientiert sind. Schließlich ist gerade bei Frühphasenfinanzierungen von innovativen PU davon auszugehen, dass es sich um einen aktiven VC-Fonds handelt.[41]

3. Kapitalstrukturentscheidungen unter westlichen und *Shari'ah*-konformen eigenkapitalnahen Finanzierungsinstrumenten

3.1. Einfluss von Musharakah auf die Finanzierungsentscheidung

Im Gegensatz zum angelsächsischen Raum, insbesondere den USA, stellen

[40] In Abhängigkeit von Unternehmenslebensphasen ergeben sich verschiedene Rendite- und Risikoprofile sowie Kapitalbedarfe. Vgl. zur Systematisierung von Lebenszyklen junger Unternehmen *Rudolph* (2006), S. 223; *Berger*/*Udell* (1998), S. 623.

[41] Vgl. *Stein* (2008), S. 269; *Bottazzi et al.* (2008), S. 495.

intermediäre westliche Eigenfinanzierungen in Kontinentaleuropa die häufigste Finanzierungsform da.[42] Das *Shari'ah*-konforme Äquivalent stellt *Musharakah* dar, dass entlang der betrachteten Erfolgs- und Risikoteilungskriterien sowie in der Bilanzierung und steuerlichen Behandlung vergleichbare Eigenschaften besitzt. Daher stehen der *Shari'ah*-konformen VCG auch vergleichbare Möglichkeiten zum Interessenausgleich zur Verfügung, um die Agency- und Transaktionskosten vor und nach Vertragsabschluss zu minimieren. Aus Sicht des PUs entstehen bei der Wahl für *Musharakah* weder Vor- noch Nachteile im Vergleich zur entsprechenden westlichen Finanzierungsform. Über die definierten Analysekriterien hinaus, ist grds. ein Nutzen *Shari'ah*-konformer Instrumente darin zu sehen, dass PU neue Investorenkreise mit sozialen und ökologischen Anlagekriterien gewinnen können.[43] Für beide Interessengruppen und unabhängig davon, ob das westliche oder das entsprechende *Shari'ah*-konforme Instrument gewählt wird, kann es sinnvoll sein eine Syndizierung oder Stufenfinanzierung zu vereinbaren. Aus Sicht des PUs ist ein Nutzen der Syndizierung dadurch gegeben, dass die Einflussmöglichkeiten der einzelnen VCG sinken und es von der Kompetenz mehrerer Gesellschafter profitiert.[44] Jedoch kann aus Managementsicht des PUs eine starke Aversion gegenüber Drittgesellschaftern den Nutzen der Syndizierung aushebeln. Hinzukommt, dass mit zunehmender Aufnahme von Gesellschaftern Kosten durch die Koordinierung von Mitwirkung, Information und Kontrolle entstehen, so dass Managemententscheidungen auch mit höherem zeitlichen Aufwand verbunden sind. Dies hängt jedoch insgesamt von der Gesellschafterstruktur ab, wie ggf. insbesondere vom Verhältnis von Haupt- zu Nebenbeteiligungsgesellschaftern.[45] Zur effizienten Wahrnehmung von Entscheidungs- und Kontrollrechten kann hier für den

[42] Vgl. *Stein* (2008), S. 276 f.; *Cumming (2002)*; *Schwienbacher*, (2002); *BVK* (2011), S. 13, 18.
[43] Vgl. *Rehman* (2010); *Gierath* (2006), S. 22; *Etzold/Wackerbeck* (2012).
[44] Vgl. *Tian* (2012), S. 246 f.; *Lerner* (1995), S. 17 f.; *Kaplan/Strömberg* (2004), S. 2205; *Inderst/Mueller* (2009), S. 286 ff.
[45] Vgl. *Tian* (2012), S. 278; *Lerner* (1995), S. 20 ff.; Laut *BVK* (2011, S. 12, 18) finden ca. dreiviertel der Beteiligungsfinanzierungen ohne Syndizierung statt.

Hauptbeteiligungsgesellschafter eine Spezialisierungsstrategie von Vorteil sein und im Fall eines Nebenbeteiligungsgesellschafters eine Diversifikationsstrategie. Vom Vorteil der Spezialisierung durch die VCG kann auch sein PU profitieren, weil beim Kapitalgeber Anreize zu Wertsteigerungsmaßnahmen und zur Kooperationsbereitschaft überwiegen statt der Ausübung von kostenintensiven Kontrollrechten bzw. der aufwendigen Durchsetzung von Vereinbarungen (Covenants) zur Absicherung der getroffenen Hauptvertragsbestandteile. Ein Verzicht der VCG von besonderen vertraglichen Maßnahmen, die dem Interessenausgleich dienen, kann zudem die Leistungsanreize des Managements vom PU positiv beeinflussen. Im guten Zustand ist die VCG eher bereit auf einen aufwendigen Interessenausgleich zu verzichten und sich auf Unterstützungsmaßnahmen zur Wertsteigerung zu konzentrieren als im schlechten Zustand.[46]

In der Variante einer Unternehmensbeteiligung nach *Diminishing Musharakah* steht bei Vertragsabschluss die befristete Kapitalbindung am PU im Vordergrund. Die Gewinnquote des PUs bei *Diminishing Musharakah* sollte allerdings im Vergleich zu *Musharakah* aufgrund der Rückkaufsoption der eigenen Anteile niedriger sein. Den Kosten aus der vorübergehenden starken Verwässerung des Managements vom PU stehen die Nutzen aus dem Vorkaufsrecht (Right of First Refusal) bei der Zurückerwerbung ihrer eigenen Anteile sowie aus der Einlöseklausel (Redemption Right) entgegen, die bei Vorliegen von positiven Cashflows den Rückkauf eigener Anteile erlaubt.[47] Die VCG kann in einem kürzeren Zeitrahmen ihre Investitionssumme zurückerhalten. Da einerseits eine Mitbeteiligung des PUs vorausgesetzt wird und andererseits zumindest in naher Zukunft positive Cashflows erwartet werden sollten, um abschnittsweise die Gesellschafteranteile zurückzuerwerben, ist diese Finanzierungsform für die Frühphase

[46] Vgl. *Gompers/Lerner* (1996), S. 491; *Hellmann/Puri* (2002), S. 185 ff.
[47] Vgl. *Bälz* (2000), S. 7; *Durrani/Boocock* (2006), S. 168; *Akkizidis/Khandelwal* (2007), S. 44.; *Visser* (2009), S. 90; *Jalaluddin*/*Metwally* (1999), S. 10 ff.

nur dann geeignet, wenn die Markteinführung relativ kurzfristig stattfinden kann. Die Akzeptanz der hohen aber befristeten Verwässerung des Managements vom PU einerseits, und die durch die kurze Kapitalbindung verringerten Risiken für die VCG während der Vertragslaufzeit andererseits, führen zu einer geringeren Notwendigkeit von Interessenausgleichsmechanismen und dadurch zur Verursachung geringerer Transaktionskosten. Insgesamt sind somit sowohl beim PU als auch bei der VCG Anreize gegeben, die die Gestaltungsrisiken sinken lassen. Vor dem Vertragsabschluss sind die Zustände für beide Transaktionspartner vergleichbar mit denen einer *Musharakah*-Finanzierung. Nach Vertragsabschluss hängt die Wertschöpfung und der Kooperationserfolg in hohem Maße von der Unterstützung der VCG ab, um möglichst kurzfristig positive Cashflows zu erzielen und die Kapitalbindung zu minimeren. Im Vergleich zur westlichen Eigenfinanzierungsform besteht im Fall von *Diminishing Musharakah* ein entscheidender Nutzen für PU darin, dass sie insbesondere bei spezialisierten VCGen von einem höheren Engagement in der Einbringung von Kompetenz und Erfahrung ausgehen können. Diese Erwartung sollte umso mehr erfüllt werden, aufgrund der Konkurrenzsituation zu westlichen Anbietern und aufgrund des kleineren Spektrums an Investitionszielen (vgl. Abb. 1 im Anhang), die die Attraktivität *Shari'ah*-konformer PU erhöht und dadurch die verstärkte Kooperation. In der Literatur wurde bereits zahlreich festgestellt, welche Bedeutung die Unterstützung und die operative Einflussnahme von VCGen auf den Kooperationserfolg mit ihren PU und ihre Wettbewerbsfähigkeit hat.[48] Diese Bedeutung steigt umso mehr im Rahmen der *Shari'ah*, insbesondere dann, wenn *Shari'ah*-konforme VCGen nicht nur eine komplementäre, sondern auch eine substitutive Finanzierungsrolle in der Frühphase von PU anstreben.[49]

[48] Vgl. insbesondere *Inderst/Mueller* (2009); *Tian* (2012); *Hellmann/Puri* (2002).
[49] Vgl. *Tamer* (2005), S. 146.

3.2. Einfluss von Mudarabah auf die Finanzierungsentscheidung

Ein in Deutschland besonderes Finanzierungsinstrument in der Frühphase ist die stille Beteiligung. Durch entsprechende vertragliche Ausgestaltungen lassen sich wandelbare Finanzierungsinstrumente, die in der Theorie eine bevorzugte Stellung zur Lösung von Marktunvollkommenheiten bei Frühphasenfinanzierungen einnehmen, durch stille Beteiligungen replizieren.[50] Infolgedessen wird *Mudarabah* im Folgenden zunächst einer vergleichenden Analyse mit der stillen Beteiligung unterzogen.

Die Besonderheiten von *Mudarabah* gegenüber der stillen Gesellschaft entlang der Erfolgs- und Risikoteilungskriterien nach *Bitz/Stark* (2008) sowie in der Bilanzierung und steuerlichen Behandlung liegt zuerst darin, dass, entsprechend einer atypischen Beteiligung, die VCG bei der Rückzahlung auch an den stillen Reserven der Gesellschaft partizipiert statt nur eines Nominalanspruchs wie bei der typischen Beteiligung. Mitwirkungs- und Kontrollrechte der VCG über ihre Informationsrechte hinaus, wie sie bei einer atypischen stillen Beteiligungsform eingeräumt werden, sind bei *Mudarabah* nicht vorgesehen. Darüber hinaus wird im Falle der typischen stillen Beteiligung oftmals eine Verlustbeteiligung der VCG entsprechend seiner Einlage ausgeschlossen, während dies beim *Shari'ah*-konformen Finanzinstrument dagegen nicht möglich ist.[51] In der Bilanzierung nimmt *Mudarabah* in jedem Fall die Eigenkapitalposition ein, wohingegen dies nur bei der atypischen Beteiligung eindeutig ist. Daher ist *Mudarabah* ökonomisch wie Eigenkapital, die Zahlungen an die Kapitalgeber können jedoch trotzdem steuerlich wie Fremdkapitalzinsen behandelt werden, die damit von der Steuerbemessungsgrundlage abzugsfähig sind. Das heißt *Mudarabah* trägt nicht nur zur Minimierung der Finanzierungskosten bei, sondern erhöht zusätzlich die Eigenkapitalquote eines PUs.[52] Die

[50] Vgl. *Stein* (2005), S. 55 f.; *Stein* (2008), S. 271 ff.; *Rudolph/Haagen* (2006), S. 345.
[51] Vgl. zur Verlustbeteiligung in der stillen Gesellschaft, § 231 Abs. 2 HGB; *Dalkusu* (1999), S. 155 ff.;
[52] Vgl. *Bacha* (1997), S. 4.

Bonitätsverbesserung des PUs ermöglicht bzw. erleichtert weitere (westliche) Folgefinanzierungen sowohl auf der Eigen- als auch auf der Fremdkapitalseite. Besonders der Spielraum für westliche Fremdkapitalgeber bleibt unverändert, aufgrund der beschränkten Sicherheitsverfügung bei *Shari'ah*-konformen Beteiligungsinstrumenten. Die Steigerung des PUs-Wertes durch zusätzliche Verschuldung mit dem Ausnutzen des Leverage-Effektes hat seine Grenzen im Rahmen der *Shari'ah* darin, dass der Verschuldungsgrad nicht mehr als ein Drittel betragen darf (vgl. Abb. 1 im Anhang). Schließlich unterscheidet sich eine stille Beteiligung von *Mudarabah* wesentlich dadurch, dass die Vereinbarung einer Wandlungsoption zur Anreizsteuerung möglich ist.

Bei Unternehmensbeteiligungen in Form von *Mudarabah* kann vor der Vertragsabwicklung kein Abbau von Informationsrisiken gegenüber der VCG durch die Eigenbeteiligung des Managements vom PU stattfinden. Die Informationsrisiken sind umso höher einzuschätzen, je höher der Innovationsgrad der Investition ist und je kleiner das PU ist. Da das *Shari'ah*-konforme Finanzinstrument keine Mitwirkungs- und Kontrollrechte über Informationsrechte hinaus vorsieht, steigt die Bedeutung alternativer Interessensausgleichsinstrumente, wie insbesondere Syndizierung und Stufenfinanzierung. Aufgrund eines relativ hohen unternehmensindividuellen Informationsaufwands und aus Gründen der Risikoteilung und -reduktion, können Syndizierungen aus Sicht der VCG ein sinnvolles Instrument sein.[53] Bei Syndizierungen ist ggf. die Beziehung zwischen Haupt- und Nebenbeteiligungsgesellschaftern relevant, da Ersterer einen höheren Anreiz hat, die Informationsrechte wahrzunehmen und Letztere als Trittbrettfahrer davon profitieren können. Dabei bestehen die Nutzen aus der Syndizierung für das PU darin, dass die starke Abhängigkeit von einem Kapitalgeber vermieden wird und Wertsteigerungen durch

[53] Vgl. *Iqbal/Molyneux* (2005), S. 136; *Durrani/Boocock* (2006), S. 165 f.; *Akkizidis/Khandelwal* (2007), S. 52 ff.; *Gassner/Wackerbeck* (2010), S. 81.

mehrere VCGen möglich sind.[54] Ihr Anreiz zur Wertsteigerung entsteht durch den Ausschluss von Kontroll- und Mitwirkungsrechten und durch die Partizipation an den offenen und stillen Reserven.[55] In den westlichen Ausgestaltungsformen einer stillen Beteiligung, würde sich die VCG zum Nachteil des PUs immer besser stellen wollen, so dass Anreize zu Wertsteigerungsmaßnahmen im Vergleich zu *Mudarabah*, welche aus Sicht des PUs insbesondere von spezialisierten Intermediären zu erwarten sind, geschwächt würden.

Eine Stufenfinanzierung erlaubt über sequentielle Verhandlungsmöglichkeiten zustandsabhängige Vereinbarungen und Anreizgestaltungen, die zum Ziel des Interessenausgleichs zwischen den Transaktionspartnern führen. Nach der *Shari'ah* stellen die einzelnen Finanzierungsrunden voneinander unabhängige Projekte dar, in der die Kapitalerhöhung eines PUs einem spezifizierten Investitionsziel zugeordnet werden muss. Die Zusatzkosten einer zunehmenden Sequenzierung bestehen darin, dass Transaktionskosten, Unterinvestitionsprobleme, Bonding Kosten, kurzfristige Renditeorientierungen, Anreize zur Fortführung unvorteilhafter Projekte sowie nicht zuletzt Sicherheitsanreize zunehmen können.[56] Für die VCG dient die Stufenfinanzierung dazu, Rückschlüsse zur Qualität des Managements, zum Projektverlauf und dessen Marktpotential zu gewinnen. Die Nutzen des PUs aus der Stufenfinanzierung in Abhängigkeit von Meilensteinen bestehen in der Festschreibung von Cashflow-, Informations- und Kontrollrechten bereits zu Vertragsbeginn, um die Gefahr des Hold-up durch den Kapitalgeber zu senken. Aus Sicht der VCG resultieren nach Vertragsabschluss die Gestaltungsasymmetrien in einer Beteiligungsfinanzierung über *Mudarabah* insbesondere daraus, dass Kontroll- und Mitwirkungsrechte ausgeschlossen sind und dass

[54] Vgl. *Tian* (2012), S. 246 f.; *Lerner* (1995), S. 17 f.; *Kaplan/Strömberg* (2004), S. 2205; *Inderst/Mueller* (2009), S. 286 ff.
[55] Vgl. *Visser* (2009), S. 91; *Khalil et al.* (2004), S. 65 ff.
[56] Vgl. *Myers* (1977); *Sahlman* (1988), S. 27 ff.; *Gompers* (1995), S. 1461 f.

gerade die Phasenfinanzierung zum Einsatz kommt. Die Stufenfinanzierung spielt jedoch unter diesen Rahmenbedingungen in der Frühphase für den Interessenausgleich der Transaktionspartner eine wichtige Rolle, insbesondere dann, wenn dem Management bei erfolgreicher Geschäftsentwicklung ein abschnittsweise steigender Gewinnanteil ermöglicht werden kann, um seine Leistungsanreize zu erhöhen und Gewinne nicht zu schmälern. Da der Kapitalgeber keinen festen Rückzahlungsanspruch hat und das Management einen Anreiz hat, einen möglichst niedrigen Gewinn anzuzeigen sowie ein höheres Investitionsrisiko einzugehen, sind erhöhte Monitoring-Anstrengungen in Form von regelmäßiger Berichterstattung oder generell weitgehende Einblicke in den Geschäftsverlauf für die VCG notwendig, um ihren Anspruch auf den tatsächlichen Gewinn zu wahren bzw. das Verlustrisiko aufgrund der vollständigen Haftung möglichst präventiv zu minimieren.[57]

Eine weitere eigenkapitalnahe Variante der Mezzanine Finanzierung sind Genussrechte. Anders als bei der stillen Beteiligung, liegt der Vorteil der Genussrechte darin, dass sie keiner gesetzlichen Regelung unterliegen und damit hohe Gestaltungsvielfalt der Vertragsbedingungen gegeben ist.[58] Dadurch lassen sich die Eigenschaften von *Mudarabah* entlang der betrachteten Kriterien nach *Bitz/Stark* (2008) und auch aus bilanzieller sowie steuerlicher Sicht replizieren. Zumeist weist die vertragliche Ausgestaltung von Genussrechten mit Eigenkapitalcharakter viele Parallelen zu *Mudarabah* auf.[59] Das PU kann mit Hilfe von Genussrechten ein Verlustpuffer schaffen, ohne eine Verwässerung in den Mitwirkungs- und Kontrollrechten hinnehmen zu müssen. Im Gegensatz zu Genussrechten gilt für *Mudarabah*, dass insbesondere die Risikoteilungskriterien, wie Mitwirkung und Kontrolle sowie die Rechtsstellung in der Insolvenz, vorgegeben sind und nicht von den Transaktionspartnern frei verhandelt

[57] Vgl. *Jensen/Meckling* (1976); *Fama/Jensen* (1983); *Jensen* (1986); *Khalil et al.* (2004), S. 65 ff.
[58] Vgl. *Drukarczyk* (2008), S. 413 f.; *Rudolph* (2006), S. 356 f.
[59] Vgl. *Perridon/Steiner* (2007), S. 413 f.

werden können. Daher ist eine *Shari'ah*-konforme VCG im Vergleich zu seinem westlichen Pendant an diese und weitere Rechtsrahmenbedingungen gebunden (vgl. Abb. 1 im Anhang). Ein PU, das die Wahl zwischen *Mudarabah* und Genussrechten hat, wird sich aus diesen Gründen, insbesondere bei spezialisierten VCG für Ersteres entscheiden. Entsprechend der Diskussion im Vergleich von *Mudarabah* gegenüber stillen Beteiligungen, stehen aus der Perspektive der VCG mit den Instrumenten der Syndizierung und der Stufenfinanzierung begrenzte Mittel zum Interessenausgleich zur Verfügung, die wiederum eigene Gestaltungsrisiken verursachen. Dieser Zustand erfordert von einer VCG eine sehr hohe Betreuungsintensität und sehr tiefe Beratungsleistung, um Agency-Kosten zu minimieren und Wertsteigerungen zu maximieren. Daher ist zu erwarten, dass die Portfolioauswahl umso selektiver ist, um die Erfolgswahrscheinlichkeit von Investitionen zu maximieren.[60] Die flexiblen vertraglichen Ausgestaltungsmöglichkeiten von Genussrechten, wie u.a. auch ein Umtauschrecht in Gesellschafteranteile und ein Optionsrecht auf den Bezug von Gesellschafteranteilen, wird zu aller erst zu Gunsten der VCG ausfallen, um ein Interessenausgleich gerade bei Frühphasenfinanzierungen von innovativen und kleinen PU kostengünstig herzustellen. Aus Sicht von PU ist eine Abwägung zwischen der hohen Flexibilität von Genussrechten und den möglichen vielversprechenden Betreuungsmaßnahmen im Falle von spezialisierten VCGen zu treffen, die bei *Mudarabah*-Finanzierungen zu erwarten sind. Die potentiellen Nutzen durch die Betreuung einer *Shari'ah*-konformen VCG ist jedoch vor dem Zustandekommen der Transaktionsbeziehung verbunden mit der Unterziehung eines aufwendigeren Auswahlprozesses und mit einer höheren Ablehnungsquote.[61]

Zusammenfassend stellt sich im Vergleich zu *(Diminishing) Musharakah* auch die

[60] Vgl. *Visser* (2009), S. 85 ff.; *Sundararajan/Errico* (2002), S. 12 ff.; *Iqbal/Molyneux* (2005), S. 136; *Akkizidis/Khandelwal* (2007), S. 39 ff.

[61] Vgl. *Akacem* (2008), S. 73 ff.; *Gassner/Wackerbeck* (2010), S. 83; Vgl. *Visser* (2009), S. 85 ff.; *Khalil et al.* (2004), S. 87 ff.

Frage, ob eine *Shari'ah*-konforme VCG überhaupt bereit ist Frühphasenfinanzierungen über *Mudarabah*, insbesondere als Hauptgesellschafter bei innovativen und kleinen Unternehmen, vorzunehmen, weil sie sich relativ hohen Informations- und Gestaltungsrisiken aussetzt. Dagegen eignet sich *(Diminishing) Musharakah* viel eher für die Frühphase, weil mehr Mittel zum Interessenausgleich zur Verfügung stehen und die Abhängigkeit von Syndizierung und Stufenfinanzierung, die mit eigenen Gestaltungsrisiken einhergehen und auch höhere Transaktionskosten verursachen können, reduziert wird.[62]

Die Studie von *Alman* (2012) hat in einer Befragung von *Shari'ah*-konformen Private Equity Unternehmen signifikante empirische Evidenz für ein konservatives Investitionsverhalten bei der Portfolioauswahl festgestellt. Dabei wurden u.a. Unternehmensalter der PU, Finanzierungsstufe, Länderfokus sowie Branche als Kriterien der Portfolioauswahl betrachtet. Es liegt zwar Evidenz für ein spezialisiertes Investitionsverhalten vor, jedoch gibt es empirisch robuste Hinweise für eine konservative Portfolioauswahl, die unabhängig von der Größe, vom Gesellschaftertyp (z.B. Minder- oder Mehrheitsgesellschafter) sowie unabhängig vom Alter (Erfahrung) der Private Equity Firma ist. Das heißt theoretisch würden PU von *Shari'ah*-konformen VCG bzgl. ihrer Wertsteigerungsmaßnahmen entscheidend profitieren. Dies verlangt jedoch, aufgrund eingeschränkter Interessenausgleichsmechanismen bzw. ineffizienter verfügbarer Instrumente zur Minimierung von Agency-Kosten, eine sehr aktive und kompetente Rolle der VCG, die mit einer Spezialisierung nur im geringen Maße aufzufangen ist, wie diese Studie zeigt. Außerdem sind nicht-finanzwirtschaftliche Unterstützungsmaßnahmen durch Beratungsexpertise, die infolge einer Spezialisierung entwickelt werden könnten, verbunden mit Kosten und Entwicklungszeit für eine VCG. Die beschränkten

[62] Vgl. *Dar/Presley* (2000), S. 3 f.; *Iqbal/Molyneux* (2005), S. 143 f.; *Sahlman* (1990); *Gompers* (1995); *Kaplan/Strömberg* (2004); *Tian* (2012); *Lerner* (1994).

zugelassenen Mittel zum Interessenausgleich reichen aus Sicht einer *Shari'ah*-konformen VCG nach der Studie von *Alman* (2012) nur in geringfügigem Maße aus, um die Finanzierungsrisiken dergestalt zu steuern, dass Frühphasenfinanzierungen für kleine oder innovative PU möglich sind. Daher nehmen wir an, dass *Shari'ah*-konforme eigenkapitalnahe Beteiligungsinstrumente sich eher für weniger riskante Investitionen oder spätere Unternehmenslebensphasen eignen sowie eine tendenziell komplementäre als substitutive Finanzierungsfunktion haben, da alternative westliche Finanzinstrumente eine höhere Flexibilität aufweisen. Infolgedessen können *Shari'ah*-konforme eigenkapitalnahe Beteiligungsinstrumente zumindest dazu beitragen, dass *Shari'ah*-konforme PU ein höheren Finanzierungsmix herstellen können, um Finanzierungsunabhängigkeit und finanzielle Flexibilität insbesondere in Krisenzeiten zu erreichen. Aufgrund der flexibleren Ausgestaltungsformen von westlichen eigenkapitalnahen Finanzinstrumenten, erhöht sich die Wahrscheinlichkeit für nicht-finanzielle Unternehmen, dass überhaupt eine VCG bereit ist zu investieren. Das heißt vor der Frage, unter welchen Rechtsrahmenbedingungen ein Nutzen für *Shari'ah*-konforme PU zu erwarten ist, muss zunächst geklärt werden, in welchem Zustand eine VCG eher bereit ist zu investieren.

4. Schlussfolgerungen und Ausblick

Shari´ah-konforme eigenkapitalnahe Finanzierungsinstrumente unterliegen Restriktionen, insbesondere bzgl. der Risikoteilungsregel. Zusätzlich können typische Merkmale der Vertragsgestaltung (Covenants, (Wandlungs-)Optionen), mit wichtigen Anreizfunktionen zur Interessenangleichung von Kooperationspartnern, nur eingeschränkt genutzt werden. Die Restriktionen betreffen grds. Mezzanine-Finanzierungen, wie v.a. Finanzierungsinstrumente mit Wandlungsoption. Zentrale Fragestellung ist, welche *Shari´ah*-konformen eigenkapitalnahen Finanzierungsinstrumente von welchen Anbietern

einen Nutzen für Portfoliounternehmen gegenüber entsprechenden westlichen Instrumenten stiften können. Aus Sicht des Portfoliounternehmens ist ein Trade-Off entlang der Erfolgs- und Risikoteilungskriterien nach *Bitz/Stark* (2008) zu erwarten, jedoch in begrenztem Maße aufgrund negativer Auswirkungen auf die Leistungsanreize, höherer Agency-Kosten und nicht zuletzt dem Wettbewerb unter den Venture Capital Gesellschaften. In der Ausgestaltung der Transaktionsbeziehung verursachen die *Shari´ah*-konformen Interessenausgleichsinstrumente, wie insbesondere Syndizierung und Stufenfinanzierung, gerade bei Frühphasenfinanzierungen von kleinen und innovativen Portfoliounternehmen insgesamt höhere Transaktionskosten. Potentieller Nutzen ist daher nicht direkt über die Erfolgs- und Risikoteilung, sondern in Folge der Anpassungen des Risikomanagements einer Venture Capital Gesellschaft an die *Shari'ah* zu erwarten. Dabei steht die Venture Capital Gesellschaft in besonderer Weise vor dem Trade-Off zwischen der aufwendigen Durchsetzung und Ausübung seiner Kontroll- und Informationsrechte und der nicht-finanzwirtschaftlichen wertsteigernden Unterstützungsmaßnahmen.[63] Die Abwägung des Managements vom Portfoliounternehmen zwischen *Shari'ah*-konformen und westlichen Beteiligungsfinanzierungen hängt neben den Unternehmenseigenschaften auch entscheidend vom Geschäftsmodell der Venture Capital Gesellschaft ab. Ein Dilemma besteht darin, dass es gerade kleinen und innovativen Unternehmen in der Frühphase an Finanzierungsalternativen fehlt und diese von intermediären Wertsteigerungs- und Kooperationsmaßnahmen zur erfolgreichen Entwicklung hohen Nutzen erfahren würden, jedoch insbesondere *Shari'ah*-konforme Venture Capital Gesellschaften mit einer Diversifikationsstrategie, aufgrund eingeschränkter Interessenausgleichsmechanismen, Portfoliounternehmen mit weniger riskanten Eigenschaften präferieren, deren konkurrierende Finanzierungsmöglichkeiten wiederum vielfältiger sind. Bei

[63] Vgl. *Aghion/Tirole* (1997), S. 10 ff.; *Cestone* (2001), S. 10 ff.

spezialisierten *Shari'ah*-konformen Venture Capital Gesellschaften sind zwar hohe Wertsteigerungsmaßnahmen und ein hohes Engagement gegenüber Portfoliounternehmen zu erwarten, aber die Wahrscheinlichkeit, dass eine Transaktionsbeziehung zustande kommt ist gering. Denn die Portfolioauswahl ist sehr selektiv und zeitaufwendig, die insbesondere von jungen und innovativen Unternehmen eine hohe Transparenz gegenüber dem Kapitalgeber verlangt.[64]

Anknüpfend an diese Arbeit könnte der Einfluss institutioneller Rahmenbedingungen eines Finanzsystems auf potentielle Nutzen aus *Shari'ah*-konformen Finanzierungsinstrumenten in der Kapitalstrukturentscheidung untersucht werden.[65] Außerdem ist ein empirischer Vergleich zwischen Portfoliounternehmen von *Shari'ah*-konformen und westlichen Venture Capital Gesellschaften möglich, der im Zuge des Börsengangs (IPO) auf der Unternehmensbewertung durch den Aktienmarkt basiert. Hier könnten in einer Ereignisstudie abnormale Renditen geschätzt werden, deren Ursachen in der Beteiligungsform durch die Venture Capital Gesellschaft vor dem Börsengang liegen könnten. Genauso wäre vor diesem Hintergrund ein langfristiger Performancevergleich zwischen früheren Portfoliounternehmen *Shari'ah*-konformer und westlicher VCG interessant.

[64] Vgl. *Sundararajan/Errico* (2002), S. 12 ff.; *Iqbal/Molyneux* (2005), S. 136; *Akkizidis/Khandelwal* (2007), S. 39 ff.; Visser (2009), S. 86.
[65] Vgl. *Bottazzi et al.* (2009), S. 563 ff.; *Qian/Strahan* (2007), S. 2808 ff.

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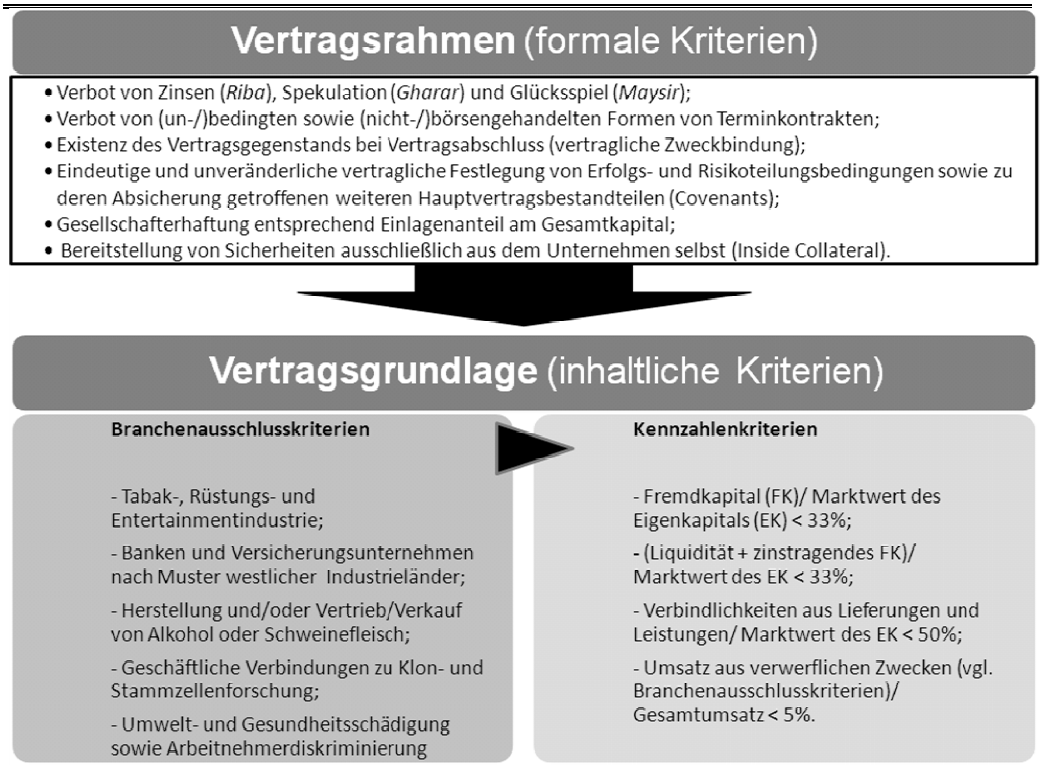
Anhang

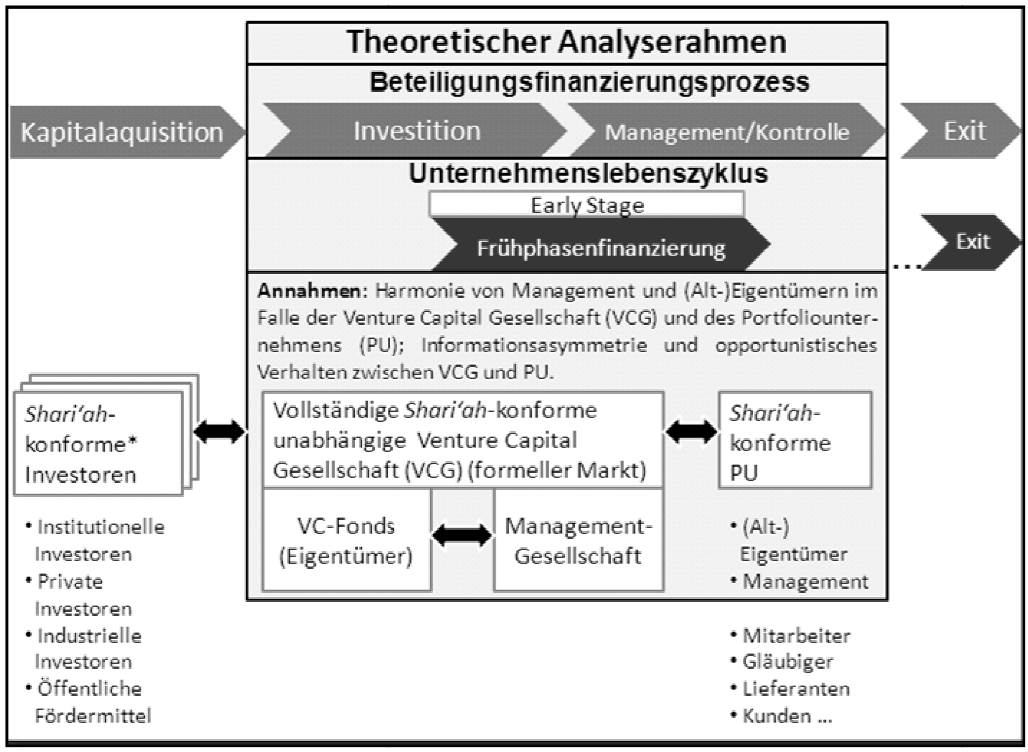
Abbildung 1



Anmerkungen: Besondere Rechtsrahmenbedingungen der Shari'ah bzgl. eigenkapitalnaher Finanzierungskontrakte [66]

[66] Vgl. im Koran 2:275-2:280; 5:90; 5:91; *Jaffer* (2004), S. 6 ff.; *Tamer* (2005), S. 107 ff.; *El-Hawary et al.* (2007), S. 780.

Abbildung 2



Anmerkungen: Analytischer Rahmen der Marktakteure und des Beteiligungsfinanzierungsprozesses; *bzw. Investoren mit sozialen und ökologischen Anlagekriterien