
SPECIAL REPORT

TD Economics



August 6, 2015

A CHECKERED LANDSCAPE: A GLOBAL VIEW OF THE RISK OF SHADOW BANKING

Highlights

- In this report, we provide an overview of the shadow banking systems in North America and Europe in the hopes of providing a better understanding of the risk these systems represent. We find that shadow banking does pose a long-term risk to financial stability, but to different extents in different regions.
- For the US, UK, and Europe, shadow banking represents a serious longer-term risk. By design, shadow banking entities take advantage of gaps in regulatory oversight. In a changing regulatory environment that is mostly focused on the stability of the traditional banks, the concern is whether or not shadow banks will become as large as they once were through another unsustainable build-up of poor-quality assets that led to the 2008-09 financial crisis.
- In Canada, the risk is comparatively small on both a short-term and long-term basis. If there is a risk, it likely lies in the National Housing Act mortgage-backed securities (NHA MBS) market which is tied to the broader issue around household debt.

“... We simply have to expect that when we draw regulatory boundaries, and supervise intensely within them, that there is the prospect that activities will move outside those boundaries and we won’t be able to detect them, and if we can, we won’t have adequate regulatory tools. That is a huge challenge to which I don’t have a great answer.”

-Federal Reserve Board Chair, Janet Yellen, in response to a question by IMF Managing Director Christine Lagarde on Shadow Banking, July 2014

The world changed when Lehman Brothers failed on September 15, 2008. Insofar as the largest bankruptcy in American history exposed massive bets by major financial institutions (FIs) on structured products¹ backed by poor quality assets, perhaps equally surprising was that this build-up of excesses went mostly undetected by central banks and regulators until it was too late.

It was clear that the regulatory landscape needed an overhaul. Dozens of regulators around the world have since collaborated to ensure that there will not be a repeat of Lehman. Those identified as Systemically Important Financial Institutions (SIFIs) are now subject to new rules around transparency, capital and liquidity safeguards, stress testing, derivatives trading and other areas that will hopefully achieve that goal.

The SIFIs, however, were only half of the story. The build-up of structured products largely originated from a complex network of financial firms collectively known as the shadow banking sector. These firms act like traditional banks in that they can transform savings into loans for households and businesses, but they do so outside of the public safety net that governs the traditional banks. By extension, shadow banks have traditionally conducted their activities outside of the scrutiny of federal regulators. In real-

ity, 2008-09 was not a banking crisis, but a shadow banking crisis that dragged the traditional banking system down with it. Federal Reserve Board governor, Daniel Tarullo, stated in a 2012 speech that “*The financial crisis...revealed the need for two reform agendas. One must be aimed specifically at the problem of too-big-to-fail institutions. The other must be directed at the so-called ‘shadow banking’ system...*”

Efforts made since 2008 to regulate the financial system have, in part, been aimed indirectly at shadow banks. But by their nature, they still mostly fall outside regulatory borders. Indeed, the uncertainty noted in Chair Yellen’s comment quoted above underscores both the risk that shadow banks present and the difficulty of mitigating such risk. It is clear, however, that the next major step along the pathway of financial regulation will be targeted at the shadow banking sector – in recent years, central bankers, regulators, and prominent officials in Canada, the U.S., the UK and Europe have expressed growing concerns regarding their respective shadow banking systems and the need for increased monitoring and oversight.

In this report, we leverage a rapidly growing body of research to provide an overview of the shadow banking systems in North America and Europe in the hopes of providing a better understanding of the risk that these firms collectively represent. By taking a deeper dive, we find that shadow banking does indeed represent a risk to global financial stability, but to different extents in different regions. In Canada, the shadow banking system is largely self-contained, and the risk is comparatively small on both a short-term and long-term basis. If there is a risk, it likely lies in the National Housing Act mortgage-backed securities (NHA MBS) market which is tied to the broader issue around household debt. As such, there is the possibility of a tail-risk event in the housing market leading to losses in lender mortgage portfolios and, potentially, to insurers and the federal government. However, there should be sufficient safeguards to limit the downside risk.

For the U.S., UK, and Europe, shadow banking represents a much longer-term risk. By design, shadow banking entities take advantage of gaps in regulatory oversight and use this advantage to undercut traditional banks as credit intermediaries. In a changing regulatory environment that is mostly focused on the stability of the traditional banking system, the concern is whether or not shadow banks will become as large as they once were through another unsustainable build-up of poor-quality assets that led to the 2008-09 financial crisis. And because the U.S., UK, and European

systems are inextricably linked through cross-border capital flows and counterparty exposures, a risk to one system is really a risk to all three.

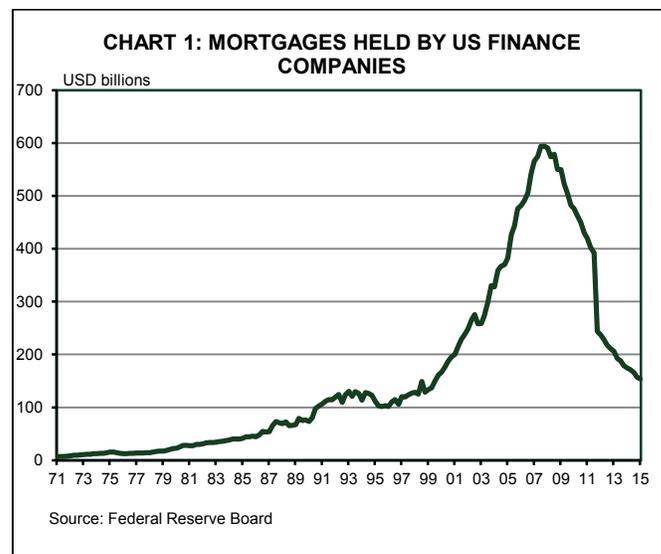
What is shadow banking?

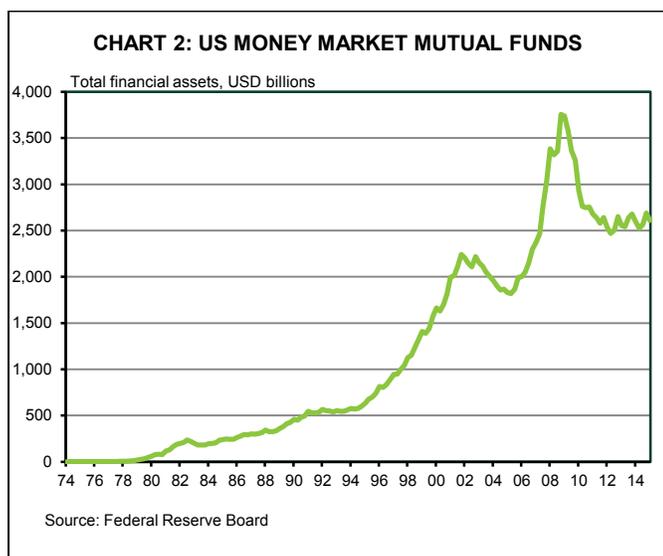
The shadow banking system is similar to the traditional banking system in that the range of activities the two engage in closely mirror one another. Shadow banks simply take the credit intermediation process of traditional banks and separate it into its constituent steps. As an example, a normal process for a bank might be to gather deposits, originate loans, package a pool of loans into an asset-backed security, and sell the security to an investor. That same process occurs within the shadow banking system, but might require multiple specialized firms each performing a different function.

The range of shadow banking entities consequently reads like a laundry list of financial institutions in different sectors: insurance companies, pension funds, broker dealers, non-bank finance companies, hedge funds, money market mutual funds, and special purpose vehicles, such as multi-seller conduits or structured investment vehicles, to name a few.

From a risk perspective, the traditional and shadow banking systems differ in 3 key areas.

1. Shadow banks do not hold deposits – Traditional banks have the benefit of being able to fund their activities using their own deposit base. These are also insured, making them highly stable. Since shadow banks are not depository institutions, they primarily tap short-term wholesale funding markets.
2. Shadow banks do not have access to deposit insurance or central bank liquidity – Since shadow banks do not hold





deposits, insurance is generally moot. However, unlike traditional banks, if shadow banks run into funding troubles, they do not have access to emergency lending facilities from their central banks.

- Shadow banks are not subject to the same degree of regulation – In compensation for deposit insurance and emergency central bank support, traditional banks are subject to a wide variety of regulations including minimum standards for lending, capital and liquidity buffers, limits on leverage, and ongoing monitoring by regulators. In contrast, shadow banks are subject to a much looser set of rules and less monitoring, if at all.

Since shadow banks are not subject to the same regulatory limits, they are able to service parts of the economy – households with lower credit quality or the varied risk profiles among small and medium-sized enterprises, for example – in a more cost effective manner than traditional banks. In this regard, shadow banking plays a critical role in the financial system in ensuring broad-based access to credit.

But therein lies the risk

Lending to riskier borrowers, however, exposes these firms to far more potential losses during a downturn. The looser monitoring framework also limits regulators from preventing an unsustainable build-up of credit. Case in point, according to Lux and Greene (2015), non-bank, non-captive mortgage lenders (i.e. those entities that are not subsidiaries of depository institutions) accounted for 30% of all U.S. mortgage originations in 2006 but 42.5% of subprime originations that were ground zero during the financial crisis. Not surprisingly, many of these firms failed during the crisis such

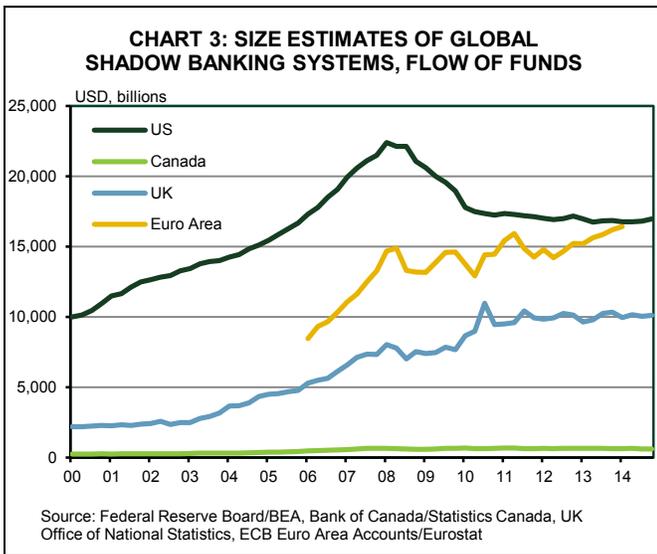
that, by 2010, their share of originations slumped to only 12%. Chart 1 shows that the outstanding mortgages held on the balance sheets of finance companies (both captive and non-captive) nearly quintupled from US\$130 billion to nearly \$600 billion in the 8 years leading up to the housing downturn, but fell precipitously in the wake of the crash.

In fact, chart 1 likely understates actual originations made by these firms in the lead-up to the crisis, as it would not reflect the large proportion of mortgages that were sold or securitized. As mentioned above, numerous shadow banking entities might be involved in a single transaction: one firm might originate a mortgage, but could turn around and immediately sell that to a 2nd firm for warehousing and securitization. At that point, a 3rd firm might provide insurance on the security before the 2nd sells it to an investor. This is a simple example of how a single loan within a shadow banking transaction can expose multiple entities (including the investor) to potential losses if the mortgage becomes delinquent. More complex transactions might involve an even longer chain of institutions.

Adding to this vulnerability is the fact that shadow banks' funding source is comparatively unstable. Since these firms do not have a stable insured deposit base available for use, there are essentially 3 ways in which they can fund their activities. They can issue short-term debt instruments such as commercial paper, asset-backed securities or medium-term notes. Alternatively, they can conduct repurchase (repo) or securities lending transactions, which are forms of collateralized borrowing. All 3 options are generally short-term in nature, meaning firms need to frequently roll over debt.

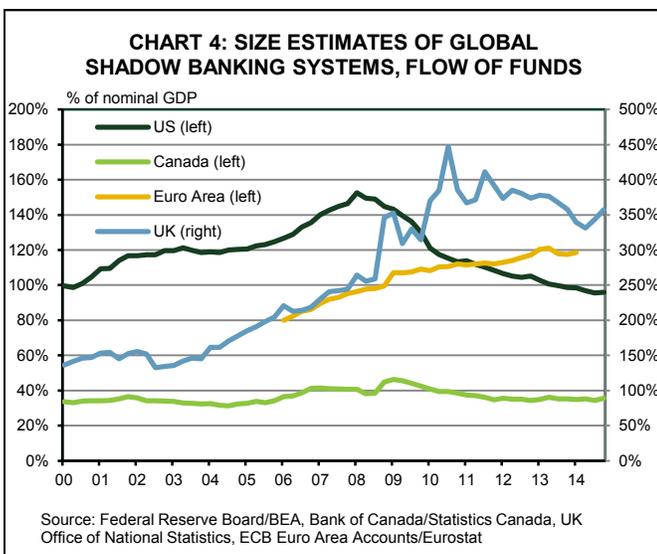
The large majority of funding is ultimately provided by the U.S.' multi-trillion dollar money market mutual fund industry – which is also true for financial systems in Europe, as well. Shadow banking activities are thus funded directly using U.S. institutional and retail cash balances, exposing both investors and money market funds to the credit risk of shadow bank borrowers. Should an economic or financial downturn cause those risks to be realized, money market funds could be exposed to losses and drive investors to redeem their holdings. At this point, money market funds could become either unable or unwilling to provide the continuous stream of credit that shadow banks rely on, resulting in a liquidity crunch.

Importantly, when their direct funding source dries up, shadow banks have few alternatives. As mentioned earlier, they do not have access to emergency liquidity from their central bank. Instead, shadow banks must depend on either



credit lines they have with traditional banks, or on their parent companies if they are captive. If this too is insufficient to cover cash deficits, which is more likely if an entity is highly-leveraged, then shadow banks begin to fail. This, in turn, can potentially trigger a domino effect of losses for anyone who has exposure to them or their counterparties.

This is the modern-day equivalent of a traditional bank run – a shadow bank run – the difference being that for the traditional bank, it occurs via an outflow in deposits. Case in point, prior to the failure of Lehman Brothers in 2008, U.S. money market mutual funds collectively held over US\$3.75 trillion in assets. Just 18 months later, US\$1 trillion (~27%) in asset value had been wiped out due to redemptions (Chart 2).



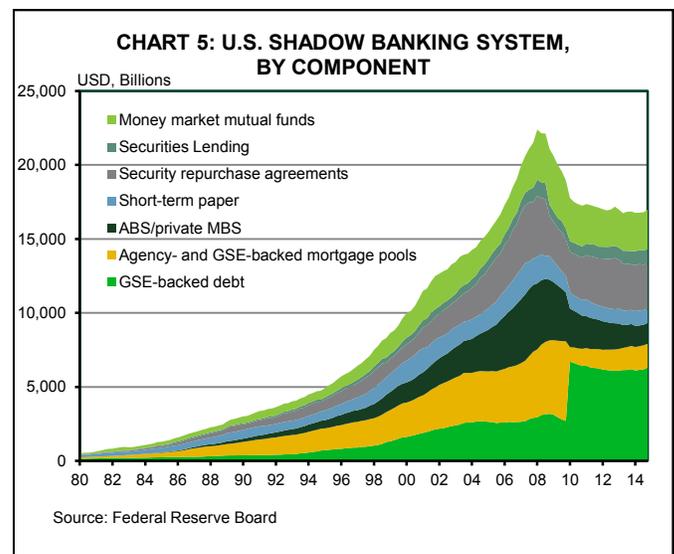
Shadow banking around the globe

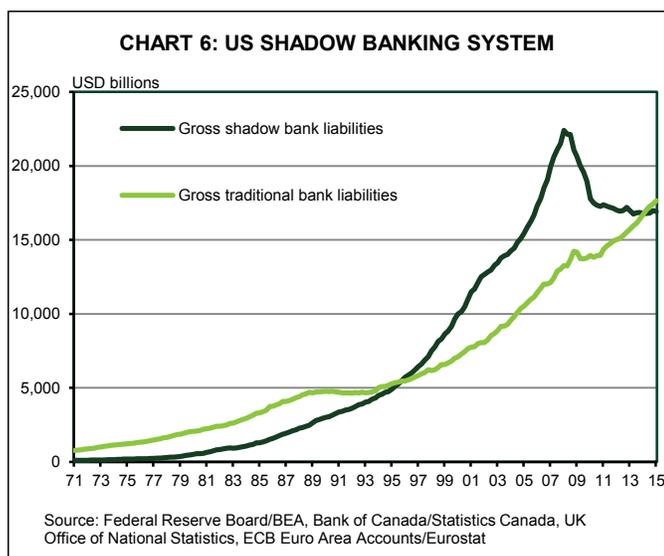
The magnitude of this type of risk varies across the globe due to varying degrees of market size, sophistication and integration of shadow banking into the broader financial system (Charts 3 and 4). Canada’s shadow banking system largely stands on its own, the risk to which is tied directly to the problem of household debt. In contrast, for the US, UK and Europe, it is more appropriate to think of their shadow banks as one system as large-scale cross-border capital flows and counterparty exposures largely make them inextricable from one another. As a consequence, the risks to the 3 regions are much the same.

United States

Arguably the most sophisticated in the world, the U.S. shadow banking system is the most extensive in terms of the range of practices and entities. In terms of its size in dollar terms, it is also the largest. Chart 5 provides a breakdown of the U.S. system – the breakdown is done on an activities basis in which each component represents a different sector in which shadow bank entities either fund themselves or operate in. For example, the securities lending, repurchase agreement, and short-term paper markets are the primary markets in which these firms fund themselves, while agency debt and agency/GSE-backed mortgage pools are how the GSEs (Fannie Mae, Freddie Mac, etc.) fund themselves.

The size estimate used here is consistent with widely-accepted methodologies in other research. However, the true size of the shadow banking system is still unknown. For one, there is some double-counting in this methodology as liabilities in one segment of the system may also appear in





others. In chart 5, commercial paper issued by a corporation would show up in the “short-term debt” segment, but could also show up in the “security repurchase agreements” or “money market mutual funds” segments if the paper was used in the former or purchased by the latter.

Conversely, there are also segments of the shadow banking system not yet captured as there is not yet a formal definition of “who’s in and who’s out”. There are ongoing discussions, for example, as to whether or not asset management companies, mutual funds, and exchange-traded funds (ETFs) should be included. In this regard, the U.S./Canadian measures are not directly comparable to the UK/European measures. In the U.S. and Canada, these entities are only partly included to the extent that they transact in the funding markets that shadow banks depend on (i.e., securities lending). The European data, however, include these entities in totality, thereby overstating their size to some degree relative to the North American systems.

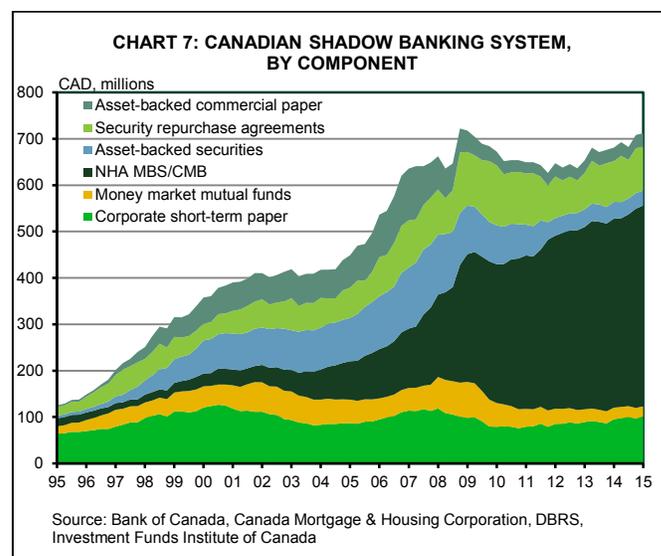
Nevertheless, there are several conclusions that we can draw from the data. The deleveraging that the U.S. economy has faced since 2008 has very clearly been concentrated in the shadow banking system. While growth in the traditional banking system has been quite robust since the economic recovery began, shadow bank liabilities only reached their trough in 2013 and still remain 24% below their 2008 peak. Yet, even then the shadow banks are still collectively the same size as the traditional banks (chart 6). This is likely a source of concern among regulators, as this is essentially saying that a complex web of less-regulated, less-monitored entities is equally as important as the big banks in the universe of household and business lending.

The primary risk is whether or not shadow banks will become as large as they once were through another unsustainable build-up of poor quality assets. This is especially concerning in an environment where the rules around the SIFIs continue to be tightened and ultra-low returns continue to generate a quest for yield. Indeed, in 2014, non-banks accounted for over 40 percent of total mortgage originations in dollar volume according to Lux and Greene (2015). And, 6 of the top 10 mortgage originators in the first quarter of 2015 were non-banks². There are even concerns that sub-prime lending is beginning to gain popularity in the auto lending sector³.

Canada

The Canadian shadow banking system is quite different from the U.S. or UK or European systems. It is comparatively small (charts 3 and 4). In addition, 60% of it is accounted for by NHA mortgage-backed securities (MBS) (which also includes Canada Mortgage Bonds) – excluding this component, shadow banking liabilities fall from C\$712 billion to just \$279 billion (chart 7).

With regards to the remaining components, it is unlikely that they represent major risks. The markets for asset-backed securities, asset-backed commercial paper and money market mutual funds are small and have fallen significantly from their peaks in 2008. Repos and short-term paper have grown in size since the crisis, but these funding instruments are not, in themselves, risky. This was the case for the U.S. only as they were partly being used to fund the origination and securitization of poor-quality assets. In general, repos and short-term paper are critical instruments that companies



use for a wide variety of reasons, such as meeting overnight cash deficits. It is worth noting that non-depository credit intermediaries (which would be the rough equivalent of non-bank finance companies in the U.S.) held just over 4% of total outstanding household credit and even less of business credit.

On its own, shadow banking likely does not have the critical mass to pose a systemic concern in Canada – the size of the system only equates to 37% of gross traditional bank liabilities. If there is a risk, it likely lies in the NHA MBS market. However, this is not an isolated risk. The NHA MBS program allowed banks to lower funding costs in issuing mortgages, which likely contributed to the growth in household debt which currently sits at record levels. Not surprisingly, nearly two-thirds of that debt is comprised of mortgages.

As we discuss in the shadow banking example above, broad-based securitization exposes numerous counterparties to the credit risk of originating banks’ mortgage portfolios. This includes the banks themselves and mortgage insurers. The federal government is also exposed due to its explicit backing of both mortgage insurance and MBS guarantees provided by, primarily, the Canadian Mortgage and Housing Corporation, but also through other insurers. Should an unemployment rate or an interest rate shock hit the housing market and lead to a deleveraging episode, the risk is that all of these parties with exposure to the mortgage and MBS markets would be negatively impacted.

That being said, the probability of a systemic event appears to be small.

Federal regulators in Canada have introduced a host of

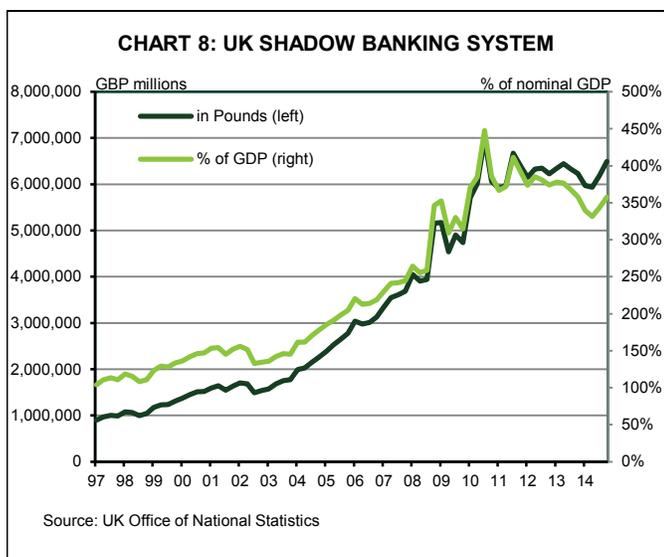
regulatory changes to insured mortgages related to maximum amortization periods, more stringent income testing standards, maximum loan-to-value ratios, among others. These have all weighed on riskier mortgage lending in recent years. In addition, Canadians have been quite prudent at paying down debt, limiting the potential for a higher rate reset when borrowers go to refinance. Despite continued home sales activity and price growth across the country, mortgage lending growth is at its slowest pace since 2001⁴.

From a shadow banking perspective, the prospect of a hard landing in the housing market causing issues in the NHA MBS market is not inconsequential, but neither is it imminent. MBS’ are ultimately backed by a federal government that is in good fiscal standing implying that there is very little risk for investors. In addition, the large majority of mortgages and NHA MBS’ are actually originated and held by the banks themselves, which are highly regulated. In other words, there is a capital safeguard held against these assets. Still, the adequacy of these safeguards has not been truly tested in a financial crisis environment and the many forms it could take, so a tail-risk event is still a concern.

UK/Europe

The UK and European shadow banking systems are even more difficult to parse than those in North America. The flow of funds data in the U.S. and Canada are granular enough that the liabilities used, in part, to fund shadow banking activities can be directly observed. This allows for a slightly more accurate view, since liabilities are agnostic to the type of organization issuing them. In Europe, the flow of funds data are not as granular. Measuring the shadow banking system involves looking at the assets of all financial institutions that are not banks, referred to as Other Financial Intermediaries (OFIs). In this regard, the data likely overstate the size of the shadow banking system as they do not distinguish shadow banks from FIs that are not engaged in those activities (chart 3).

This is particularly true for the UK whose shadow banking system checks in at over 350% of GDP (chart 8). London acts as a financial hub for many European countries that have less developed financial systems and has a large presence of asset management companies, real estate investment trusts, and other FIs unrelated to shadow banking. The UK’s Financial Stability Board provides a narrowed-down measure of OFI assets which removes those who are not explicitly shadow banks. The subsequent estimate reduces the size of the UK system by half, from US\$9.3 trillion to



US\$4.7 trillion at the end of 2013. Though precise data for the Euro Area are not available, a similar exercise for the major countries in the region suggests that the flow of funds analysis is similarly overstated. Yet, even with this overstatement of assets, the UK and euro area shadow banking markets are not as large as that of the U.S. in absolute terms.

From this perspective, both the UK and European shadow banking systems appear much more manageable. But there are two issues here. On the one hand, without more granular data on the types of instruments being used or the institutions involved, we can only conclude generally that the concern for the U.S. system holds for Europe as well.

However, Europe as a region adds a unique element to this risk as funding linkages and counterparty exposures are not limited to national borders.

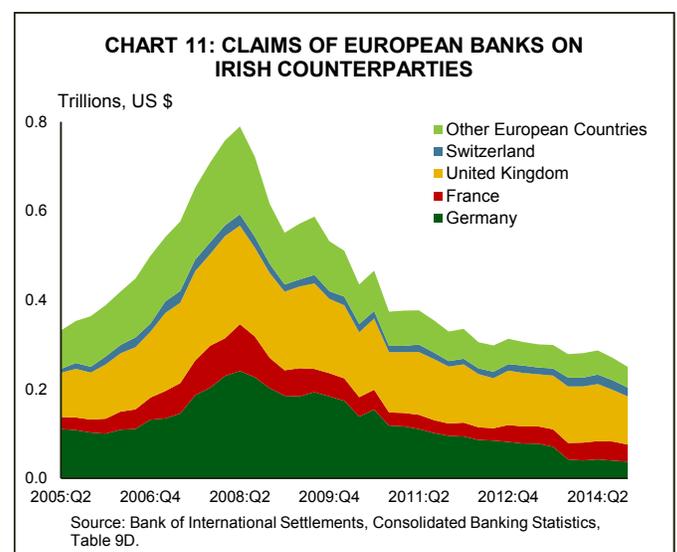
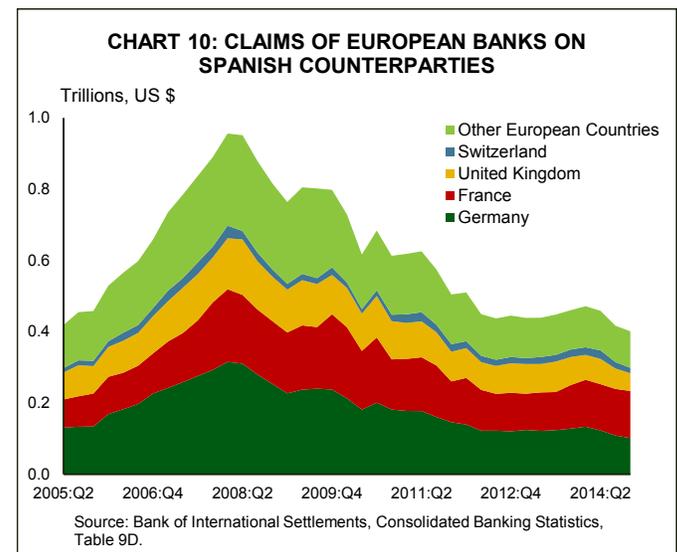
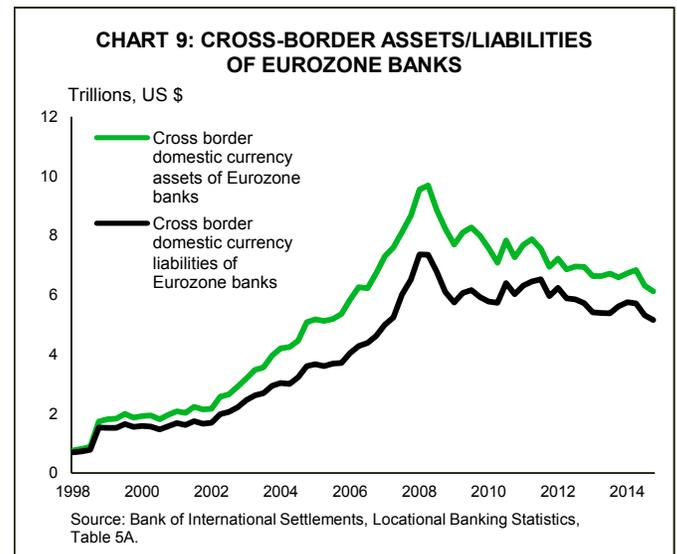
Capital flows know no boundaries

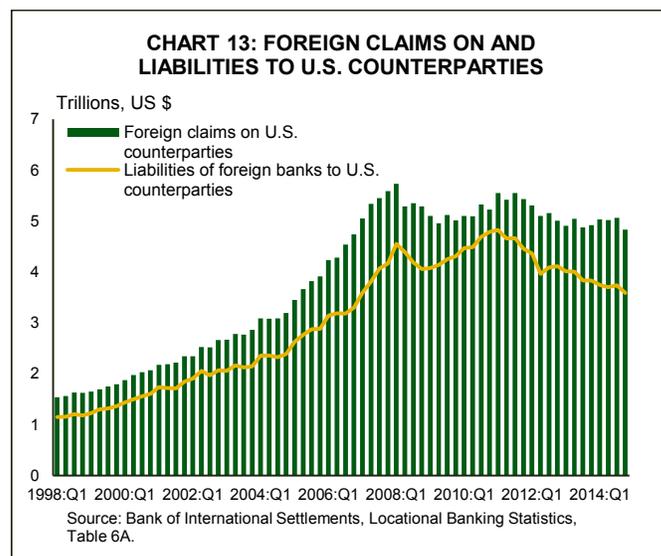
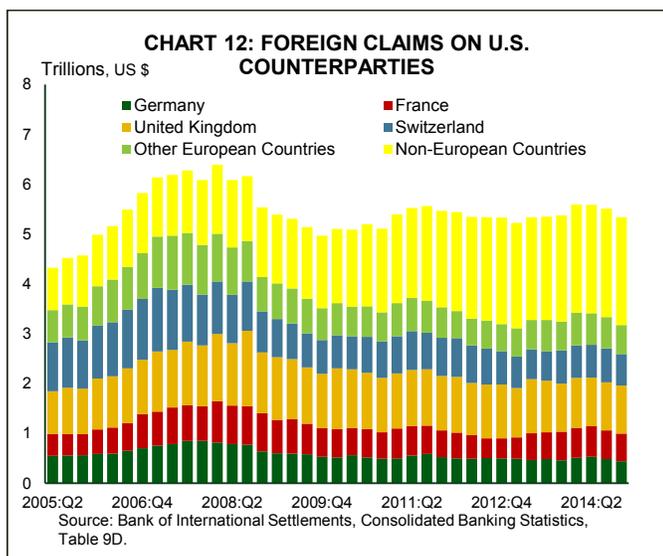
Even though shadow banking markets individually vary in size and scope of risks, ultimately the world is financially interconnected. Risk can be imported from one country to another through counterparty exposures and other financial linkages. It is more appropriate to think of the shadow banks in the U.S., UK, and Europe as one large market that crosses borders, rather than on a regional basis. A brief look in history reveals these details.

Following the creation of the Euro currency, European banks dramatically increased both their cross-border lending and borrowing activities in other European countries. Data from the Bank of International Settlements (BIS) show that in 1998, cross-border domestic currency assets and liabilities of Eurozone banks were both less than US\$1 trillion. By 2008, these figures had ballooned to US\$10 trillion and US\$8 trillion, respectively (chart 9).

For countries that experienced unsustainable property booms during this time, such as Spain and Ireland, a substantial portion of the funding for this asset growth came directly from banks in other countries. Charts 10 and 11 show the claims of European banks on Spanish and Irish counterparties by region. The data show that those in the UK, France, and Germany alone held claims of more than US\$1 trillion in these two countries at their peak in 2008 and that this figure had doubled from their level just 3 years prior.

Interestingly, these gross capital flows from European banks made their way to the U.S., as well, but in a slightly different manner. The same data show that many foreign banks with U.S.-based branches were using them as funding arms in order to raise wholesale funding, but also to





purchase assets. Chart 12 shows the breakdown of claims of non-American banks on U.S. counterparties by region. Banks in the UK, France, Germany, and Switzerland alone held roughly US\$4 trillion in claims on U.S. counterparties at their peak in 2008, with an additional US\$1 trillion coming from other European banks. Meanwhile, chart 13 shows that these banks also raised enormous amounts of funding from U.S. wholesale markets, which are known to be deeper and more liquid than in Europe. At their peak in 2011, European banks owed nearly US\$5 trillion to U.S. counterparties. According to Baba, McCauley and Ramaswamy (2009), by mid-2008, 42% of the assets of U.S. prime money market funds consisted of short-term debt issued by European banks.

These data suggest that the lines separating the traditional and shadow banking systems in the U.S. and Europe are largely obscured. The heavy reliance of European banks on U.S. money market funds for wholesale funding implies that these institutions were essentially using their U.S. branches as shadow bank extensions. But the parent companies themselves appear shadow bank-like as they play a similar role to money market funds by funding asset growth in other European countries.

The risk related to shadow banking in the UK and Europe is thus both greater and smaller than in the U.S. In isolation, Europe shows greater linkages between traditional and shadow banks, suggesting that if a crisis were to occur, both systems would be severely impacted. However, since much of the funding for UK and Eurozone bank assets comes directly from U.S. money market funds, the U.S., UK and Europe are all intricately linked. The risk then to one system

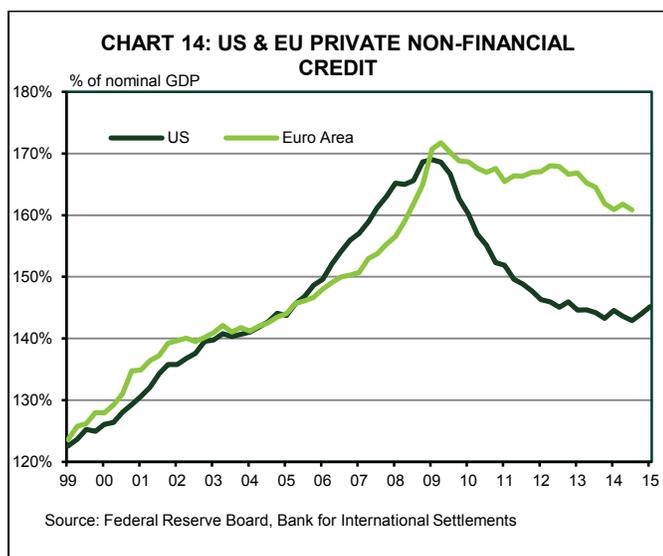
is really a risk to all three.

In contrast, the Canadian shadow banking system does not have the same dependence on U.S. money market funds. The lack of delineated shadow banking firms in Canada also lessens the systemic concern associated with funding provided by money market funds.

What's the bottom line for shadow banking?

For the U.S., UK, and Europe, there is little doubt that shadow banking represents a major ongoing concern to financial stability. However, there are several factors that help mitigate that risk.

First, for shadow banking to become a problem, there needs to be credit growth. Without a deep loan pool to draw from, shadow banking activities (i.e., warehousing, pooling, securitizing, etc) cannot take place. And, neither the U.S. nor Europe are showing signs of strong credit demand. After deleveraging for 4 consecutive years, U.S. households are only now beginning to lever up once more, but growth remains soft at just 2.5% year-over-year as of Q1-2015. Businesses have levered up to a greater degree, with year-over-year growth currently at 6.25%. However, private non-financial credit market debt as a share of GDP remains low at around 145%. In Europe, households did not experience as severe a deleveraging as in the U.S. However, credit growth has been extremely weak since the sovereign debt crisis began in 2010, as banks continue to grapple with weak economic growth and continued solvency concerns. In the last 6 years, total private non-financial debt has grown by just 2.6% and debt as a share of GDP has actually fallen by 11 percentage points since 2009 (chart 14). Credit growth is beginning to



pick up in both regions – a trend likely to accelerate going forward. However, this could be accompanied by a back-up in longer-term rates given the Federal Reserve preparations to hike interest rates later this year. A higher rate environment would likely pull capital flows down the risk curve, potentially away from shadow banking entities.

In addition, the operating landscape for shadow banks in the U.S., UK and Europe has become fundamentally more difficult in recent years owing to regulatory changes. [Appendix 1](#) provides an overview of regulations that have been implemented since the financial crisis which can be broken down into 3 major categories. Materially, one of these changes involves regular and detailed stress testing activities that require banks to benchmark their loan risk profiles against severe economic outcomes. While these regulatory changes have largely been focused on traditional banks, a fair amount has targeted funding markets that shadow banks depend on. There is also a plethora of new rules around reporting and oversight, providing regulators deeper insights into markets that were previously opaque.

Capital, liquidity, and funding requirements

The Dodd-Frank Act in the U.S. and Basel III for the rest of the world implemented a host of changes relating to banks. Higher capital buffers (particularly for those that are more leveraged), more stringent liquidity buffers, and new requirements around the stability of funding were all designed to allow banks to absorb more losses and survive during freeze-ups of funding markets during tail-risk events.

These rules are designed to ensure that if another 2008-like event were to occur, the core banking system would

remain solvent and operational.

Changes to money market funds and derivatives trading

As part of Dodd-Frank, the Securities Exchange Commission made critical changes to the functioning of U.S. money market mutual funds (MMMFs). Specifically, institutional prime money market funds will now be required to adopt a floating net asset value as opposed to a constant net asset value. The value of these portfolios thus fluctuates with market conditions, eliminating the assumption that MMMFs are riskless investments. In addition, investors in MMMFs are now subject to liquidity fees and redemption gates. If liquidity in a fund falls below a certain level, fund managers now have the ability to either charge liquidity fees or suspend redemptions for short periods of time, limiting the potential for runs. The European Commission has implemented its own rules to ensure sufficient liquidity in the money market system, and for those funds that choose to maintain a constant net asset value, a capital buffer is now required. For example, MMMFs that choose to maintain a constant net asset value must maintain a capital buffer of 3 percent of total assets under management in order to buffer potential losses on investments. These funds may also be required to structure their maturity schedules to ensure that they can meet high volumes of redemptions should a financial stress event occur.

Major changes were also made to how derivatives are traded. In both the U.S. and Europe, swaps and other derivatives that, prior to the financial crisis, were all traded over-the-counter through intermediaries are now required to be cleared through a central counterparty or clearing organization. Certain types of derivatives trading thus require collateral to be posted in case of default and regulators now impose capital and margin requirements.

These markets, particularly in the U.S., are the primary sources of funding for shadow banks. By imposing these new rules, regulators have simultaneously made these sectors of the financial system safer, while imposing additional costs that shadow banks would need to absorb when they raise funding. It is even possible that the poorest-quality shadow banks would be “priced out” as money market funds or other counterparties may be unwilling to fund them at all.

Transparency, monitoring and oversight

Perhaps the least glamorous, but most important regulatory change relates to the monitoring, oversight and report-

ing requirements of financial institutions. From a long-term perspective, the challenge of trying to regulate shadow banks is a cat-and-mouse game. By design, these entities take advantage of where there are gaps in regulator coverage and continuously evolve in order to do so. Until the regulatory landscape reaches a steady state, we may not know exactly what form shadow banks will take.

In order to mitigate that risk, regulators in the U.S., UK, and Europe have implemented a long list of initiatives aimed at keeping tabs on financial developments. All 3 regions, for example, have formed independent groups tasked with the ongoing monitoring of systemic financial risks, such as the U.S. Treasury's Financial Stability Oversight Council. In addition, a multitude of different institutions are now subject to different reporting requirements in order to allow regulators to keep up-to-date on developments at the firm-level. One of the more visible examples of this would be the supervisory stress tests that banks in the U.S., UK and Europe run on a regular basis.

Institutions that were much maligned in the wake of the crisis, such as credit rating agencies, insurance companies, and hedge funds, are now subject to a greater level of scrutiny, forcing them to be more transparent and improve accountability. And because derivatives are now being traded through central counterparties and clearing organizations, data is now being collected on the terms and agreements of instruments that largely contributed to the build-up of leverage and counterparty exposure but that were, prior to the crisis, opaque to any regulator looking from the outside.

China

A thorough analysis of China's shadow banking system is beyond the scope of this analysis. While its size and risk

profile are substantial (some estimates are as large as US\$4 trillion, or roughly 150% of nominal GDP), it lacks much of the cross-border exposure that the U.S. and European systems have. If a disruption were to occur, it would likely be part and parcel of a much broader downturn that could have wide-reaching effects for the global economy⁵. For the purpose of this report, we focus on those systems that pose a direct risk to the North American financial systems.

Concluding remarks

On a near-term basis, the outlook for the shadow banking system does not appear to be dire. Canada faces some risk with respect to the NHA MBS segment of its shadow banking system, but only as it relates peripherally to the broader risk around household debt. In the U.S. and Europe, credit demand is not showing the signs of strength needed to generate the assets required for shadow banking activities. Moreover, as these systems are designed today, the regulatory changes discussed above will very likely succeed in monitoring and limiting growth in the types of activities that led to the 2008-09 financial crisis.

Still, Janet Yellen's comment quoted at the beginning of this report still rings true – there is always the risk that when regulators draw regulatory boundaries and supervise within them, the activities of these financial entities will move beyond those boundaries and that we will not be able to detect them. The most critical challenge associated with shadow banking is being able to predict how they evolve. The monitoring framework regulators are currently putting in place will hopefully stem some concern, but the risk is right there in the name: you cannot always see what is in the shadows.

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ENDNOTES

- 1 A structured product is a type of financial instrument which use derivatives to generate a specific kind of return. In the lead-up to the financial crisis, one of highly publicized types of structured products that led to the downfall of several financial institutions was collateralized debt obligations (CDOs) backed by mortgage-backed securities. MBS are pools of mortgages themselves – CDOs are thus prepackaged pools of MBS.
- 2 <http://www.ft.com/intl/cms/s/0/3754ac32-0644-11e5-89c1-00144feabdc0.html#axzz3dnWyDdgY>
- 3 http://www.td.com/document/PDF/economics/special/US_Auto_Lending.pdf
- 4 <http://www.td.com/document/PDF/economics/special/CanadianMortgageMarket.pdf>
- 5 <http://www.td.com/document/PDF/economics/special/ChinaRisks.pdf>

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